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TWO SPHERES

REVISED & ENLARGED THROUGHOUT

1. Science and religion.

B

Martin, W T. B.

TWO SPHERES

OR

MIND *VERSUS* INSTINCT

BY

T. E. S. T.

REVISED AND ENLARGED

London

T. FISHER UNWIN

PATERNOSTER SQUARE

1894

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Mart

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Preface

TO

REVISED AND ENLARGED EDITION.

THE Author has not forgotten the story of the *Old* Spanish Priest, and his resentment of Gil Blas' too candid criticism of his *later* Homilies. Nor, on the other hand, is he unaware of the unprofitable nature of philosophical literature from pens really unaided and anonymous. Nevertheless, he has resolved to publish this, his last and revised edition of "The Two Spheres." His inducements to do so are that the Work has been frequently inquired for since it was out of print, and (especially) that he is more and more impressed with the great importance of its subject. He the more willingly undertakes the task because it gives him a *last* opportunity, not only of a Revisal of the subject matter of this work, but also of strengthening its arguments, and of adding many additional ones, more up to date. In a mere literary point of view, however, he claims no improvement, nor has he attempted to make his style more conventional. If he has unfortunately differed in some points from the views of one or two highly eminent Authorities whom he quotes, no apology need be offered, because he knows they will expect none. But his obligation and respect for them remain.

For some readers it may be desirable to have a concise indication of a few of the main questions discussed, and some of the Fallacies which the Author has tried to expose. They may be thus stated:—

1. Is there one Great First Cause, absolutely Supreme, who

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Created all things, and by whom all things exist: *i.e.*, (1) Matter, or Dust, (2) Animal Life, and (3) Mind?

2. Was Man (made of Dust) originally a Savage—dumb and ignorant; or a perfect MAN, endowed with Knowledge, Language, and Intelligence?

3. Has the original Race gradually risen in Intelligence and Civilization, or, otherwise, do the most Ancient Ruins and Writings show that it has degenerated in Art and Refinement?

4. Can Animal Instinct (a mere Natural Endowment) rise into, or Create, Mind (a Universal Entity), or are they absolutely Incommensurate?

5. Was the Religion of primeval Man the worship of One God or Polytheistic, as that of all Tribes and insulated peoples discovered in modern times? Or does not Isolation necessarily beget degeneracy, and eventually lead to Cannibalism?

6. Are Miracles possible, or instead of being Supernatural are they all accounted for by the agency of Natural causes?

7. Is Man possessed of Free-Will (of which and of Conscience all Animals are devoid), and, if not, can he be a responsible being?

8. Is Evolution unlimited, or do Animals produce their own Kind only?

These suggest numerous other questions, as the reader may better observe by reference to the "Subject Index."

The Author has endeavoured to discuss these and many other cognate problems with an open mind and, he trusts, in a candid spirit. In now bidding Adieu, he begs to thank those (several of eminent name) who have done him the honour of writing to him.

November, 1893.

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INTRODUCTORY LECTURE.

SYNOPSIS.

THE first and fundamental argument of the book shows that, whilst **Truth is One**, it consists of two kinds—or rather (since this word has given rise to misunderstanding) *two Spheres*. One of these is physical, belonging only to Time, and neither eternal nor immortal—the Sphere of **Natural** Truths. The other is mental, belonging generally to Eternity, and is always immortal—the Sphere of **Universal** Truths.

This is not a new theory, but it has been practically lost sight of. The two kinds are incommensurate, but not antagonistic; and hence the necessity for the application of our Test first of all to every proposition presented for consideration. Such application, in fact, at once divides every complex proposition or theory into its two spheres. Then, and not till then, almost all theories being more or less complex, each of these spheres can be examined and logically discussed, apart from, but conjointly with the other. The primary importance of this division is shown by the endless contradictions and confusion which have arisen from all attempts to discuss such complex propositions in

the abstract. We therefore have called such an application as this a *Test* of theories—not a *Judge*. The test goes no farther than to prepare the theory or proposition for logical examination by the Reason (Mind), which must ever be the only Judge of truth.

It may be, and indeed is, asked, "What guidance does this test give us individually in deciding any question of morals, or of right and wrong?" Our answer must be, "None, directly." It leaves all such questions free of interference. The Mind of man is free, and is the sole logical and independent judge in the *Universal* sphere. So also in the *Natural* sphere. The test does not interfere; it leaves all questions in Physics to the Natural Sciences and to experience—the Mind being in all cases the sole logical judge as between empirical facts and fallacies. Natural truths as such are not possessed of Continuity.

To render the difference between the Two Spheres or Hemispheres of Truth more clear and distinct, they may be thus briefly defined:—

Whatever Truth is Immortal is a **Universal** *Truth.*

Whatever Truth is only Temporal is a **Natural** *Truth.*

As every truth is either Immortal or Temporal, this Definition seems complete.

But here is another equally brief:—

All Mental Truths are **Universal.**

All Physical Truths are only **Natural.**

Mere Natural Truths cannot be also Universal, but some Universal Truths may be also Natural.

As to the importance of our *Test* the reader will be

able to draw his own conclusions from various illustrations in this volume.

II. Our second argument is that **Instinct** is not a thing of the same kind as Mind. It is not an entity, but merely a synonym of Animal Life, *is* indeed Animal Life itself, and therefore mortal, belonging *only* to the *Natural* sphere.

This being a point of the highest importance, and directly contradicting the popular fallacy that Instinct contains at least some germ of Mind, is treated as fully as our space permits. It has a distinct bearing upon the truth or fallacy, not of limited Evolution, but of the "extreme Evolution theory." It affords a direct answer to Dr. Darwin's famous proposition, upon the truth of which he staked his entire theory. Man possesses both Instinct and Mind, while mere Animals possess only the former, and are devoid of any ideas of Morals. A clear definition of Instinct as contrasted with Mind is a point of great importance. The latter seems capable of indefinite improvement, whilst the former is incapable of any beyond the fixed limits of Instinct intelligence.

III. **Creation.**—1. *Of the Solar System.* The several different theories are examined, namely, those of the Ancient Tablets and Vedas, the Atomic theory, Laplace's, the Vortex theory, Mr. Norman Lockyer's, Mr. Proctor's, and, lastly, that of Genesis. Objections to all of these stated. 2. *Of Life.* The Heat theory. The beginning of Life seems to be unknowable. 3. *Of Mind and Language*—which are always coexistent, and infer each other. Instinct is proved by our Test to be

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incommensurate with Mind. Man is a special and separate creation. God is not only the Architect of the Universe, but also its source.

The idea of Spinoza considered. Matter not eternal, though of vast antiquity. Protoplasm, like Matter generally, shown to be incapable of creating Life. The mystery of physical Life. The wonderful revelations by the Spectroscope of the elements of planets, and of planetary and inter-planetary motions and velocities. Planets are stores of Gravitation.

IV. Evolution.—Dr. Darwin's theory. His hesitation and candour. Evolution in the Animal world not impossible, but must be limited. Dr. Wallace and Variations in Species. Objections by Agassiz. Evolution from the lowest Animal Life up to the Ape as yet only a theory, but up to Man proved to be impossible. No trace or Fossil of an Ape-Man yet discovered. The extreme Evolutionists. Man reigns over the entire Animal Kingdom as his servants and slaves, subject only to the Laws of Nature.

The "Eternity of Matter" and "Extreme Evolution" shown to be self-contradictory theories. Evolution of Animal Life belongs to the *Natural* Sphere. Man possesses Mind — the *Universal* Sphere; and these two are incommensurate. Haeckel's illogical Embryology theory. One great original Animal **Type.**

The brains of most ancient Mummies, as indicated by their skulls, show no inferiority to those of modern men. The Oneness of the human species distinctly manifest, and there is a remarkable differ-

ence between the human brain and that of the animals. Man only can bargain and barter with his fellows. By his gestures and his eye he reveals his wishes, and governs the brute creation, thus to them, in a remarkable manner, largely supplying the place of **Speech.** He only walks erect, kindles fire, cultivates the earth, rears food, and makes clothes and tools. The human *head* and *hand* are specially unique. Owen and Huxley. Great variety of opinion.

V. Valuable arguments may be drawn from the science of **Geometry.** This is almost the only body of truth which commands universal acceptance; and hence our adoption of it to represent *Universal* truth generally. Pure Mental Geometry knows neither Space nor Time. Even Agnostics cannot object to it. If we can illustrate the Truth of our Test by any one universal truth, it must be logically applicable to all *Universal* truths. Arithmetic and Algebra. *Universal* truths. The Parabola.

It may be asked, "Why not employ any other Universal truth—Ethical truth, for instance — in the Argument?" The answer is, because experience has shown that endless discussions would result, and our aim at brevity would thus be entirely defeated. The extreme antiquity of this Science. We use it, simply as representative of *Universal* truths generally, and preferably so because it remains perfect without any exception.

VI. Immortality. — The difficulty of demonstrating its truth is fully admitted: nevertheless it cannot be disproved. Its belief is traced in the history of all peoples, tribes, and nations, ancient

and modern, the savage and most enlightened alike.

Such evidence is largely furnished by the most ancient Tablets, underground tombs, and Ruins, and by the insulated Tribes discovered in modern times. Immortality assumed as a truth by the religions of all known eras. This disquisition leads us to a consideration of Sun-worship, of the religions of ancient Mexico and Peru, of the Veda-writings of India, and of those of Job and Moses.

VII. Civilization. — There is no proof that Civilization has always been progressive—equally probable that it has been retrogressive. The "original savage" theory remains a mere assumption. The argument from the savagism and cannibalism of insulated tribes and South Sea Islanders as discovered in modern times, shown to be misleading. The theory of Retrogression is supported by the evidence of a primeval moral ideal or law, and by the very advanced knowledge of art, architecture, letters, and general learning in the earliest known nations.

The incidental glimpses we obtain of prehistoric times from the most ancient Ruins and otherwise, indicate a remarkably high refinement of architectural art, and its necessary accompanying culture, in Egypt and the East, as well as a widely extensive commerce. The less ancient ruins and writings, and especially the religion of the several nations, prove a gradual degradation from those previously existing, and indicate an original spiritual Theism, descending downwards, as we approach less ancient eras, to Materialism, Poly-

theism, Animal worship, human sacrifices, and even Cannibalism. Ancient Chronologies contradictory, and all seem untrustworthy. Condition of Woman, and other Indices of Civilization.

VIII. The Human Mind is an Entity—absolutely distinct from and superior to the material world, the Forces of Nature, Instinct, and the entire Animal and Vegetable kingdoms, whilst it is subject to its own individual introspection. Instinct and Mind are incommensurate, and separated by a gulf impassable. The importance of Logic, belonging to the *Universal* sphere. The Mind is **One**, but may be considered under its separate faculties. Consciousness.

Mind being the only Judge, must, if correctly informed, pronounce true judgment. There is no appeal therefrom. Conscience is only a Monitor, though unbribeable. Illustrations drawn from the contrast between men and animals, and between Human Faculties and Animal Endowments. Mere Intelligence is not Reason.

IX. Body and Mind.—The mode of their communication unknown. The Animal Brain the centre of action; the Frontal or Mental Brain, possessed **only** by Man, is the centre of Thought. The functions of different parts of the brain are traceable, and act through nerves proceeding from the corresponding brain and spine. The line of demarcation between Man's Instinct brain and his Mental brain. The paramount dignity and beauty of Man conspicuous. He only appreciates æsthetic beauty and musical harmonies. He only possesses Reason, Language, and Inventive Genius.

The elements of Matter unknowable. Its action on Mind not obvious; nor that of Mind on Matter, other than its own Body. Matter is the slave of Mind. They are of different Spheres. Matter not eternal nor immortal. Four theories of their communication by Descartes and Leibnitz, Berkeley and Hume. Huxley. Numerous Animal anecdotes.

X. Laws and Forces of Nature.—Illustrations of mechanical Force or Energy; Heat and Motion; Gravitation and Inertia; Polar Magnetism; Ponderability; Latent and Potential Forces; the Ether and Air; Water and Coal; Conservation of Energy; Correlation of Forces; Design; Compensations; the Law of Counteractions. *Oneness* of the "Laws of Nature," "Properties of Matter," and the "Evolution Theory" (limited). The Steam Engine defined; Tools. All material nature reducible into Dust. Every element of our System, gaseous, liquid and solid, being reduced to its ultimate form, is simply Dust. Out of Dust, therefore, (the element of the heaven and the earth) the Creator seems to have evolved not only the Dry Land, Air, and Sea, but every natural form, living plant, and animal. Dust itself indestructible by Man.

These latter considerations are such as constantly greet the inquirer, though they border on the Unknowable. The two Forces of Nature—Gravitation and Inertia—are those upon which the proper balance of our System is maintained. These, with Magnetism, Electricity, Galvanism, and Heat, not being themselves ponderable entities, but only properties, seem to exist only *in and by material things.* Of living creatures and plants, every species

is endowed with germs for the reproduction of its own kind, and of its own kind only. Uniformity *v.* Catastrophe. Potential energy. Planets.

XI. The Bases of Evidence.—Of these we may distinguish four kinds. The Senses, External Testimony, the Conceivable, Probable, and logically Possible, and fourth, Demonstrable and Geometrical Truths. Doubts even of the existence of Matter have arisen, and Doubts with respect to *Universal* truths may, and sometimes do arise, owing to imperfect knowledge; but such truths exist and must continue to exist, and cannot be compromised by the individual man. Truths are positive. Every proposition is either true or untrue. So far as regards Sacred Books—that is to say, the Hebrew Scriptures, the Vedas, and all the sacred writings and tablets of the East, whether Indian, Chinese, Buddhist, or Mahomedan—we have in this Argument treated them alike as simple histories, and as having only the same kind of authority as that of Herodotus. Their respective values are judged by their probable veracity, internal evidence, and especially their logical possibilities—to the entire exclusion of all Creeds, orthodox or heterodox. The question of Possible or Impossible is a final *Test.*

Mere Assumptions not to be accepted. They, like many Analogies, frequently support some fallacy. If in this volume we make an assumption, it is done merely to show that one thing may be equally true or probable as its opposite. Evidences may exist of an independent kind, such as glimpses of prehistoric times derived from ancient tombs or papyrus. To

all alike there is one rule applicable. Whatever is supported by incidental evidence is to that extent probably true, and whatever is recorded even without any such evidence, if not impossible, may be true. A record which is logically impossible is certainly to be rejected as false, while one that is logically possible is not necessarily true.

XII. Freedom of Will is a special property of Man, of primary importance, and, as prompting action, it is superior to Motive. An original Creator rules supreme over all his works in Nature. If not possessed of absolute power to alter, abridge, or abrogate any of them, together with their Laws, he cannot be *Supreme*, but only Vice-Regal—merely a higher Xerxes. Man's Freedom of Will is the true key-note of all philosophic harmony. Kept steadily in view, this clears away many of the perplexities which meet the Seeker after Truth. The apparent contradiction between an omnipotent Creator, Man's Free-Will, and the existence of Evil, examined.

Wherever in an argument this freedom is contradicted by any assumption, a fallacy may be detected. This indicates the failure of such systems as those of Spinoza, Comte, and J. S. Mill. It is one of the best distinctions between Man and the Animals, no Animal whatever being really possessed of any Free Will, nor yet of Conscience. The existence of Conscience without Free Will is inconceivable. Man's Mind-Motives are under the control of the Will, but Animal (Instinct) Motives are without choice uniform and imperative. The two fundamental and leading theories in Truths' domain are, 1st, the

incommensurateness of Instinct and Mind, and 2nd, Man's Freedom of Will.

Such are the main subjects of the book, but many other matters are dealt with; some because of their importance, and all because more or less related to our discussions. We can here only enumerate some of them:—

These are Astronomy; Formation of the Rocks; the Centre; Wonders of the Spectroscope; Primeval Man; Prehistoric Eras; Indications of Great Climatic Changes; Movement of the Plane of the Earth's Axis; Catastrophe and Floods in Nature; Coloured Races and Sex; Stalactite Caves; Ancient Myths and Legends; Bricks, Cylinders, Tablets, Texts, Libraries, Papyri, Literature and Commerce; History of the most Ancient Nations—Accad, Chaldea, Egypt, Phœnicia, Egyptian Dynasties, Pyramids, Monuments and Tombs—their gigantic and monolithic character; Sun-worship; Solomon; Homer, and the Ancient Greek Philosophers and Poets; Aristotle; Epictetus; Theism, Polytheism, Pantheism, Materialism, Mechanism, Animism, Idol Worship, Monism, Buddhism, Hypnotism; Similarity of Buildings, Customs, and Legends of Peoples the most widely apart; Insular Tribes; Barbarism; the Eternal and the Infinite; Human Life; the Providential, the Superhuman, and the Miraculous; Reign of Law; "Husbandry in Heaven"; the Impassable Gulf; Animal Senses; Absence of Rest; Rudimentary Organs; Natural Selection; the Teeth Theory; Animals' Food; Absence of any Ape-Man Fossil; Philosophy and Philosophers; Social Theories; Population; Comte's

Positivism; "A Good Time Coming": Mill's Logic; Renan; Haeckel's illogical Embryology; Schmidt's Extreme Evolution; Recent Theories—Crooke's; L. Oliphant's; Macnab's Theory of Numbers; G. J. Romanes' Theory of Ideas; Dr. Reville on Genesis; Samuel Laing's Creed; Many Anecdotes, Suppositions, and numerous other Illustrations throughout; Harmonies; General Review of the Philosophic Field; Our Aim, not to propose new Theories but to expose some illogical and modern Fallacies.

"All truths are of one source and must harmonize in their results."

SECOND LECTURE.

PHYSICAL AND MENTAL TRUTH—NATURAL AND UNIVERSAL.

IT was said by Francis Bacon that "the Creator has in a manner half concealed and half revealed the Truths of Nature; in which he desires to be found out." Reader, let us join in this search—an excellent discipline for the Mind, even in the prospect of failure. But let us aim to be honest. Difficulties we must meet as far as we can, and neither ignore nor, as is more often done, evade them.

Pilate lived in an age when the Greek Philosophers had apparently exhausted discussion about TRUTH, without definite result. He was perplexed and perhaps awed by a new apparently plebeian pretender, who not only boldly claimed to be its sole possessor, but declared that "Every one that is of the Truth heareth my voice." Need we be surprised that, thus forced to consider the subject, Pilate angrily and somewhat pettishly demanded, "WHAT IS TRUTH?" Since the Roman governor asked this question, how many perplexed thinkers have done the same? There has perhaps never been a time when an exact and definite answer was more urgently and publicly demanded than it is now.

This cynical epicurean does not appear to have been very anxious for a solution of his doubt, being probably hopeless of a satisfactory reply; and so it is with many in our own time. But there are others, and amongst them men eminent for intellect, learning, and culture, who have not only asked the same question, but have endeavoured by diligent search and study to solve it for themselves. If we may judge by the widespread conflict of opinion, and by the prevalence of Agnosticism, they have not been generally successful.

To tyros in Psychology, the Science of Mind, the study of its great masters is somewhat perplexing. The result is seen in tomes of splendid literature, abounding in appropriated or invented nomenclature, decidedly peculiar itself, and almost exclusively addressed to severely academic and scientific readers. Fairly to study these treatises would require an ordinary lifetime! and even then the honest inquirer would be perplexed by their many discrepancies.

It is useless, on the other hand, to offer the old Schoolmen's answers to our latter-day Pilates, for in this highly critical age they generally fall pointless. The present writer, while disclaiming any special qualification for the task, believes, after many years of studious deliberation, that by placing many questions in a new light, and by elementary and almost axiomatic argument and illustration, a definite answer may be obtained, on at least certain Truths around which much debate has arisen. If the search is made in an honest and temperate manner, an answer may be found satisfactory even to scientific minds, in so far as based upon logical or

mathematical certainties, which, if fairly stated, do not admit of error.

Meantime there are various other questions of more than ordinary concern, which new seekers after truth may find crossing their path as they proceed, and which for some readers will require discussion, before our definitions and premisses can be accepted. Such discussion will lead us into what may at first sight appear novel views, regarding sundry important and commonly received theories. Perhaps it may prove to many as interesting as the main subject of our Argument; and, if so, this fact may serve as our apology for so ambitious an attempt, and for its plan and style of treatment generally.

Truth is ONE, and has no duality; but it must be recognized from the outset that there are Two Kinds or Spheres of Truths:—first, those which belong to the material world, and to the natural sciences, all of which prove themselves to our reason by experience and experiment, which have been called Arbitrary or Empirical, and which we will call *Natural* Truths; and secondly, those which are necessarily and universally true, under all circumstances, at all times, in all places, and in all relations conceivable by the mind. Such we will call UNIVERSAL Truths; but of these some may at the same time be also Natural, inasmuch as the greater may include the less, but, on the other hand, *Natural* Truths are not *Universal.*

Truth is one: so also the Light of the Sun is One, although the Prism proclaims that it is composed of manifold rays.

These two Spheres of Truth are in no sense con-

tradictory. The distinction between them is similar to that between Time and Eternity. These are of different spheres, but both are true, and equally true. Yet all truths are not equally important. "Ice is frozen water," "Physical Life is uncertain," "Two and two make four," "God is supreme"—these are all true statements, but they are of very different importance. The first two are *Natural*, the other two are *Universal*, but no two of the four are of identical importance. Let us bring out the distinction more clearly, by means of a few examples.

I. Amongst the most familiar kinds of NATURAL Truths are those included in Chemical and Astronomical propositions. In Chemistry, the remarkable arithmetical proportions which form the conditions or laws of chemical combinations are strictly arbitrary and unaccountable. Their existence was discovered and can be proved by experiment; but no experiment can prove that these laws are either *necessary* or UNIVERSAL. There is really "no reason in the nature of things" for their existence. No doubt they are true, as all the Laws of Nature are; but only so in the *Natural* sphere.

Again, the spectroscope shows that even the most distant of the visible stars consist of matter, having chemical properties similar to those of our globe. And the telescope reveals, by the motion of certain double stars, that gravitation reigns throughout the thousands of visible heavenly bodies. Now, if we are to argue by the laws of probability and the evidence of our Sense, both these propositions may be admitted. That is to say, they are NATURAL Truths. It is impossible to prove that they are not

true; but it is equally impossible to prove that they are necessarily and universally true.

For, however incredible such an idea may seem, the mind of man really can conceive the possibility that other worlds could exist, in other systems in the boundless and unseen Universe, having different chemical laws, and ruled in their courses by forces different from those of our system. We speak, not of probabilities, but, for the sake of argument, of logical abstract *possibilities*, and therefore we prefer to take an extreme case for illustration.

Now, in what we have already said, we are face to face with one of the fundamental difficulties of philosophy. Whilst the proposition just laid down is logically irrefutable, it may be denied by some "man of science" as being contradicted by *facts*—a fatal objection, if only it be well founded. For every theory or proposition must give way to facts, and, if shown to be inconsistent with facts, must be untrue. Let us first see what has been held on this subject by great thinkers in the past.

Immanuel Kant of Prussia (b. 1724) says, "Experience teaches us, indeed, that something is constituted in such and such a manner, but not that it could not be otherwise." * Sir William Hamilton says, "Whatever does not violate the laws of thought is not impossible. That a stone shall ascend into the air we firmly believe will never happen; but we find no difficulty in conceiving it possible. Why? Merely because Gravitation is only a fact generalized by induction and observation, and its negation violates no law of thought. . . .

* "Critick of Pure Reason," p. 5 (Pickering).

When we talk, therefore, of the *necessity* of any external phenomenon, the expression is improper."* Leibnitz (1646) says: "All the examples which confirm a general truth, how numerous soever, would not suffice to establish the universal *necessity* of this same truth; for it does not follow that what has hitherto occurred must always occur in future." The confusion sometimes involved in the use of this word we will consider later.

All such empirical and scientific truths, therefore, manifested by visible phenomena, or otherwise, whether having reference to our own solar system or hypothetically to other systems, while subject to the Laws of Nature, are of the *first* sphere, namely, NATURAL truths.

No doubt exception may be taken to the above statement, on the ground that some writers, as Mosotti, maintain that Gravitation is essential to and inherent in Matter. But even although this theory should be admitted as true, it does not follow that Gravitation is a *Necessary* and UNIVERSAL, or eternal, truth, nor even that Matter itself is so. We can conceive of Gravitation as an *arbitrary*, not a *necessary*, law. It may be called the chief Natural Law, but all attempts to prove it more than this have failed. Newton did not admit the theory that Gravitation is inherent, and indeed its definition is still wanted. It does not rank as a necessary (Universal), but as a NATURAL, truth, and consequently does not invalidate our main proposition. The same remark applies to such profound theories as those of Laplace, as well as to all the bold physi-

* "Lecture on Metaphysics," vol. ii. pp. 194–5 (Blackwood).

cal speculations of the present day—such even as the theory of a pre-Adamite cataclysm of our globe, or an internal burning, similar to that which is said to be indicated by the appearance of our Moon. Indeed, although future discoveries may incidentally render the probability stronger than now as to all or any of these theories, they can never be proved to be *Necessary* facts, but must remain mere NATURAL truths. *Throughout our argument, this is a distinction of altogether fundamental import.*

II. Of the other or second sphere of Truth, which we have called UNIVERSAL—and which in this volume is one of the principal objects of our quest—we may point out that *one section* consists of Pure or Mental Geometry, its propositions being obviously *necessary and therefore* UNIVERSAL, as to which neither doubt nor exceptions can ever exist. The speculations of Spinoza in this connection we will consider in a future Lecture.

Endless confusion of thought arises from describing and considering *pure* Geometry as merely one of the *Natural* Sciences. It is not so; it is independent of the Laws of Nature, and belongs to a higher and totally different platform. It is a *Universal* or *Spiritual* science, and its truth can be seen by "the mind's eye." It belongs to the Mind of Man, which, as we shall see, is immortal (as Material Science is not), and is for his service in all or any future states as well as in this "little life." It belongs not exclusively to the material world, not to our system, nor to any other system, nor to an Age, but to the Universe, seen and unseen—to the Eternities, as Carlyle would have said—and its truths prove them-

selves to the mind as necessarily and Universally true. Spinoza says that "A circle and the idea of a circle are one and the same thing." It was F. W. Robertson who said, "I will undertake to convict a man of *idiocy*, if he cannot see the proof that the three angles of a triangle are equal to two right angles."

This differs widely from the theory of Aristotle (B.C 384), who, however, had not in his mind the grand distinction between *Natural* and *Universal* truths. He places Geometry (Mathematics) in a sort of indefinite, intermediate position, as capable of being reasoned upon apart from matter, but *not capable of existing apart from matter.* Pure Geometry, however, being mental, can have neither ponderosity nor extension in space, and the statement here italicised cannot be maintained. Geometrical truth, which is mental and spiritual—that is *Universal*—is of course capable of existing apart from matter. *It may, like Mind itself, have existed independent of, and as it were antecedent to, Matter,* in the same manner as other UNIVERSAL truths. There is, no doubt, a sense in which Universal truths may be said to exist in the world *also*, but only because this world and time are of course included in Infinity and Eternity. Yet space and time should not be called parts of either of these, because Infinity and Eternity have no parts. Our theory, therefore, although it describes pure Geometry as an independent and Universal science, is free from mysticism.

To give another example—"The whole is greater than its part" is a Geometrical fact, and therefore a

Universal truth; but it is also a Natural truth. On the other hand a clever critic may say, "Why may not Gravitation, a *Natural* fact, be also a *Universal* one?" It cannot be so because Gravitation is a property of *Matter*, or at least is inconceivable apart from it. The shortest definition of the Two Kinds of Truth is this: *Natural* Truths are Physical and Temporal; *Universal* Truths are Immortal.

The propositions of Euclid, as we illustrate them approximately on a blackboard, are sufficiently near the truth for our mechanical working-day uses; but these lines at the best are not perfectly straight lines, nor the right angles perfectly true right angles. So far as the science dealt with by Euclid is natural, and therefore materialistic, it necessarily implies extension of space; but pure Geometry, being spiritual, has no relation either with space or time. This is the sense in which we propose to use the word in our argument, and as representing all Universal truths. This pure abstract mental science admits of no error or imperfection, however infinitesimal. The definition of its lines is length without breadth, and its points are positions without magnitude—invisible to the material sense, but luminous to the eye of the mind.

In the Universal Sphere we can *see* no variations or imperfections; but in the Natural or material world we *see* nothing that is free of variation or imperfection. Where shall we *see* in Nature a level, a perpendicular, a circle, an ellipse, a parabola, that is truly such? All are "off the truth"; and, if we carefully consider the matter, they are necessarily so because of their conditions and surroundings.

This quality of Imperfection is one of the best marks of distinction between the two spheres of truth, although not very obviously so. For example, let us take *Language*, which, as we shall afterwards see, is of the *Universal* sphere, and belongs only to Mind. But some men are dumb, and it may be said that here is an example of imperfection. However, it is not so. The dumb man is very intelligent, and is possessed of language, for he speaks by his fingers, because there is some defect in his organs of articulation. The Imperfection, therefore, is confined entirely to the material organ, which belongs to the *Natural* sphere. As Tennyson says:—

> "That type of Perfect in his mind.
> In Nature can he nowhere find." *

The Laws of Nature are inflexible and uniform—obviously so within the limits of the Solar System—but neither they nor the System are possessed of unlimited continuity.

The threefold motions of the planets give rise to an endless series of circling curves. Our globe by itself, as also with its moon, and indeed with its every mountain peak, is, as it were, constantly writing upon the blank void of space a chain of apparently endless chains of such curves, vastly elongated.

> "Sol holds the reins! Worlds onward speed,
> With merry pace;
> Spring, summer, autumn, winter run
> Their circle-race!"

Were their traces not evanescent, how marvellously

* "The Two Voices."

beautiful would be the design which such an immense belt of outlines would show; yet not one of them a perfect geometrical figure! From hour to hour, from equinox to equinox they onward whirl, ever varying in form, as well as in velocity.

We have spoken of threefold motions; but these planetary motions are fourfold, or rather we know not how manifold (for some of them are to us imperceptible)—forming epicycles of epicycles of a still vaster Cycle, round that GREAT CENTRE which science has failed to find. In attempting to realize such facts, the mind is lost in wonder, for imagination cannot conceive the grandeur of the picture. Yet all move on majestically in silent harmony. "The Dance of the Hours" and "the Music of the Spheres" are, perhaps, something more than mere figures of speech.

The UNIVERSAL nature of *pure* Geometrical Truth here set forth may seem novel, and its illustration of too abstract a character. But this point, *i.e.*, the perfection of *Universal* as of pure Geometrical truths, is all important. To the reader who cannot accept this fact, the reading of our argument will for the most part be waste of time. Without it our argument would lose its cogency and certitude, *wherein only its value lies*, and become vulnerable as the heel of Achilles; for it depends on the recognition of all *Universal* truths as absolute, admitting of no limitation or uncertainty. That "Truth requires a clear and distinct conception of its object, excluding all doubt," is strictly insisted upon by Descartes.

It may here be observed that in speaking of Mental Geometry, it is not meant that the visible geometrical

figures must be altogether disused. They are needed generally to keep before the mind the progress of one's own mental demonstration, as step by step one builds it up. But except for the imperfection of human memory, even this would never be required. The operation is essentially a Mental one, and therefore Geometrically perfect. If it ceases to be Mental, then it is Material, possessed of extension, and so out of our argument.

To some of the preceding statements it may be objected that Natural Science is yearly extending the bounds of the Visible Universe, and so absorbing portions of what at present we call the Invisible, with its unknown occupants. But the infinitude of Space, having no Parts, cannot be really diminished. As already stated, no new discoveries of Science, however extensive, can invalidate our argument. Space and Infinitude are Incommensurate; so also Time and Eternity are Incommensurate. Compare what Spinoza has said: "Mental things are not limited by Material, nor *vice versâ*." "Goad imagination to the utmost," says Sir William Hamilton, "it still sinks paralysed within the bounds of Time." A great thinker has written: "He who discerns nothing but Mechanism in the Universe has, in the fatallest way, missed the secret of the Universe altogether."

An eminent modern writer, describing the views of Joseph de Maistre (b. 1754), said that, with him, "Every truth is absolute, not relative; every explanation is universal, not historic." That position would be unassailable as regards our second Sphere of Truth, the spiritual or *Universal*, but clearly not so

as regards NATURAL truths, for these are limited by Time. There are "men who look upon all knowledge as relative, and insist that the only possible road to true opinion lies . . . in the positive generalizations of experience." This *resembles* the mere Positivism of Comte, and illustrates the confusion of thought which almost necessarily comes, even in the highest quarters, from not keeping in view the existence of the *Two Spheres of Truth.* "Truth," said Von Müller, "is the property of God; the pursuit of Truth is what belongs to man."

To sum up what has been said: the Truth of which we are in search must be necessary and immortal; true under all circumstances, in all places and periods conceivable by the mind. This can be said only of a particular kind of truths, namely the UNIVERSAL; and of this kind pure Geometry may be taken as an example. It cannot be said of NATURAL truths, which are empirical and without continuity. As such, being mortal, they are liable to extinction, and in some minds to doubt, which liabilities are inadmissible in our search for Truth in its universal sense.

It will now, we trust, be obvious that the clear distinction between UNIVERSAL and NATURAL truths will render "the two kinds of Truth" an adequate TEST in judging any proposition that may come before us. *We do not mean that the test will necessarily decide the truth or fallacy of such proposition;* but it will at once discriminate between the *Natural* and the *Universal* truths which such complex proposition may involve. *This done,* the truth or error of the proposition can then be

logically discussed and argued out, free from the confusion which would otherwise be inseparable from it. Leonardo da Vinci said that "Experience is the interpreter of the artifices of Nature." "It is our judgment itself which sometimes deceives us." "In the study of the sciences which depend on mathematics, those who do not consult Nature, but authors, are not the children of Nature. Nature alone is the master of true genius." "Theory is the general and practice the soldier."

Of any question there is only one true solution possible. All others that differ from it are of necessity untrue, like erroneous arithmetical calculations. Every truth, of whatever character, must belong either to the UNIVERSAL or to the NATURAL Sphere. Of the former kind, although we selected Mental Geometrical truth for the illustration of our Argument, as being the more definite and obvious, there are other Universal or Spiritual truths, including pure Ethics, and what are known as religious truths. But it is not necessary that these should be introduced here, even were the present writer competent for such a task. Their introduction would lead us into almost endless definitions and discussions at every point, so that instead of one, many volumes would be necessary, and our aim would be entirely defeated. Mental Geometry, on the other hand, is clear, and commands general assent without argument, and hence our selection of it.

In our next Lecture we propose to show the *primary* position which Geometry holds, and has always held, even in the most ancient nationalities of the world. Meanwhile, before we proceed to this

task, let it be clearly understood that we do not propose to introduce any new theory. The division of Truth into Two Kinds is not new. Descartes (A.D. 1596) had the merit of first making it known; then Leibnitz; and later Reid and Immanuel Kant—the latter much more fully and directly; but none of these great philosophers seems to have realized its *primary importance.* Kant names the one kind Pure *à priori* Cognition, and the other kind Empirical *à posteriori* Cognition, and introduces Geometry as illustrating the former, just as we have done. But instead of resting his argument, as we have, on this one foundation, he mentions it very shortly—almost incidentally—and at once, and at very great length, proceeds to apply his Arguments to Pure Ethics, *i.e.*, the truths of Moral Philosophy. Here he finds that Ethical Truths are very rarely pure, that is, they generally have some element of the Empirical in them, or some relation thereto, which leads him into one of the most intricate and diffusely comprehensive expositions we have of Pure Reason. To explain these and to answer critics, he wrote a new Treatise* equally voluminous and learned, which few other than philosophers will appreciate. The great and primary importance of the distinction and division of Truths into Two Kinds was never clearly apprehended, and soon became buried out of sight in volumes, divisions, sections, and sub-sections, as in not a few other thinkers' works, and readers generally find them bewildering and inconsistent, if not contradictory.

It has been suggested that our distinction between

* "Metaphysics of Ethics" (Clark, Edin., 1869).

Universal Truths and *Natural* Truths is not definite enough, inasmuch as some *Universal* Truths are *also Natural* Truths. For example, the Mental fact, "2+2=4," is a universal Truth, as all Arithmetical facts are. But it is also a Natural Truth for two pair of any Material things make four such things. This must be so, because obviously such Natural Truths as this are included in the Universal in the same way as Time (a Natural truth) is *necessarily included* in Eternity (a Universal truth) *However, the distinction remains clear;* such Truths *as Natural,* have not Continuity, while, *as Universal* they are unlimited and Immortal. In short, many Universal Truths may *also* be Natural Truths, but Natural Truths are *not* also Universal.

We think our definition is *absolute* and *clear*. All Truths which are Immortal are UNIVERSAL, while all others are NATURAL Truths.

Kant was followed by a host of philosophic writers some of them eminent, but all less or more criticising and disputing his views, and those of each other; and so the subject of philosophic truth continues, even to our own day, "in most admired disorder."

Who has not in his angling days stood on the margin of some inland lake, on a quiet summer evening, and seen a fine trout, with provoking impunity, leap up near the centre of its glassy surface? From its splash a circling wave, followed by endless circling waves, all ever expanding in diameter, flow outward, till they one by one lave the distant shores. Glittering in the sunshine with life like curves, and in admirably regular succession, they

form a quiet picture of singular beauty, such as Art may only try to imitate. Let another trout so leap at some other point of the surface, and a new system of circular, ever-widening waves arises, with similar results, but greatly distracting the eye, and disturbing the harmony of its silent music. Let a third and a fourth fish leap, and the result is utter confusion—the beautiful vision is destroyed.

Yet such is a picture of the state of Mental Science for the past centuries; and it is so now, with increasing confusion. No philosopher, however great, wise, and eminent, has succeeded in forming a general Theory or School *which his successors will agree to adopt, or even approve.* Of Descartes, the famous French philosopher, it was said that the *Universal* Mathematical Science which he sought after was only the prelude of Universal Science of an all-embracing character. Even Comte (1797), the founder of the Positive School, admits that Philosophy is defeated in its attempt to reach an absolute principle of Unity.*

We think the chief cause of this multiplicity of opinions is the practice of treating the MIND under numerous *separate* heads, or faculties, or mere names, such as Reason, Consciousness, Understanding, the Will, Mental-Conception, Abstraction, Æsthetics, Imagination, Intellect, Wisdom, Mental-Perception, Reverence, Consideration, Reflection, Ratiocinations, Memory, Introspection, and other names; together with the Emotional feelings (generally called the Affections of the heart). And not only so, but some

* "Social Philosophy of Comte," by Professor Caird, 1885, Preface, p. xii.

of these faculties of Mind are further discussed, each under several subsidiary names or *conditions*, such as Real and Ideal, Mediate and Immediate, Objective and Subjective, or Analytical and Synthetical, and so on. This, too, at great length, and sometimes, as by Kant and others, in new divisions and sections, often hopelessly involved, as if several of these words and names were each a *separate* and independent Entity or Part of Mind, instead of being, as all of them are, either the Human Mind itself in action, or else its several states or conditions mentally considered from different points of view. For is not Consciousness (Thought) just Mind in action? "I think, therefore I exist," says the Latin proverb. "The self that thinks is not something outside of its thoughts. It is by a false abstraction that we talk of the faculty of Consciousness as if it were a part or bit of mind separated by spatial division from other faculties." * In every part of Consciousness the whole is present. And are not such Reasoning, Emotions, and Reflections mere expressions of the varied Moods or Conditions of the Mind—some of such latter class of words having simply relative significations? Max Müller expresses himself very strongly on this point. He says, "We deny that there are such (separate) things as Mind, Intellect, Understanding, and Reason. . . . It is sheer philosophical polytheism to speak of sense, mind, reason, intellect, understanding, as so many independent powers." † Is not Mind the Man, and

* "Spinoza," by John Caird, LL.D., p. 120 (Blackwood, 1888).

† "The Science of Thought," by F. Max Müller, pp. 72–74 (Longmans and Co., 1887).

Man the Mind? or to borrow the words of St. Augustine, "The Mind is all in the whole, and all in every part" (or rather Faculty).

Sir William Hamilton (b. 1788) has the merit of somewhat checking the increase of such names, by showing that Consciousness was the only one of them practically *useful* or necessary, as it constituted the fundamental form of every act of Knowledge, and that indeed Consciousness and Knowledge each involve the other. He says that nothing exists for us except in so far as it is known to us, and that nothing is known to us except certain properties or modes of existence which are relative or analogous to our faculties. On the other hand, he adds, "We are not warranted in denying as possibly existent what we do not know." If I say, "I am conscious that I know this is Monday,"* would it not be exactly equivalent to saying, "I know that this is Monday"? Even this word "know" is not really necessary; I may simply say, "This is Monday." Of course there is no objection to the use of any intermediate words, provided always that their use does not suggest to us the idea of Parts of Mind. Indeed the use of some of them is in many cases necessary alike for precision and brevity, and accordingly we will so use them when needed, but always having clearly in view that they represent Mind, not Parts of Mind, *i.e.*, not separate Entities.

To the same effect Aristotle, one of the most eminent of the Ancient Greek philosophers, asserts that the Mind contains the Man, not the Man the Mind. "Thou art the soul," says Hierocles, "but

* Hamilton's "Lectures on Metaphysics," vol. i. p. 192.

the body is thine." Hamilton says, "I who possess organs and thoughts, am therefore neither these organs nor these thoughts. . . . But if I try to conceive myself existent without a thought, . . . I am unable. . . . A Suspension of thought is thus a suspension of my intellectual existence."

A recent writer speaks of the Emotions as the Soul. He says, "It is the emotional part of Man that is his soul, and is immortal, and not intellectual." This attempt to place the Emotional in opposition to the Intellectual is a fallacy. The Intellect is another name for Mind, and therefore is an Entity; but Emotions, such as Love, Fear, Tenderness, Hopefulness, &c., are not entities, but only *conditions*, or affections of the heart, or more properly of the Mind. The affections, and specially Love, is the best index of man's state of mind, and exercises more influence in the world than even Intellect; but they are allied, or at least not opposed. Both belong to Mind, and are of the UNIVERSAL sphere, being alike Immortal.

The faculties of Mind may be illustrated by those of the body. The latter consists of Organs and Limbs of sense and action which operate directly on the Material outward world, both living and inert. These organs and limbs are parts of the body, although not independent of it, because although I speak of my "strong right arm," its acts are really the acts of the body *as One*. Even much more so, the Mind is One and indivisible—being a spirit it has no substance (to use Locke's phrase) and no parts.

The Mind obtains its perceptions of Matter and

the visible Universe through the faculties of the body, and such form some of the subjects of the ratiocinations of the Mind, upon which its judgments or opinions are formed; and, on the other hand, the mental action of Mind upon the outward material world is performed through and by the living body. These perception-impressions, and the ratiocinations and judgments thereon, are not lost, but can be less or more completely recalled and reconsidered by the Mind, in proportion to the strength of its memory. The Mind thus becomes a vast storehouse of knowledge—ever increasing—not only of perception-impressions, but of ratiocinations, opinions, and judgments generally, as well as those of its original constitution, innate ideas, and *à priori* truths. The Mind is never perfect, but is ever becoming more intellectually endowed, and hence age is naturally associated in the Mind with wisdom. Thus wrote Campbell :—

> "'Tis the sunset of life gives me mystical lore;
> But alas! how short does this sunset appear." *

For as "the shadows lengthen as the day declines," so do the thoughts and aspirations of the Mind brighten and crowd around the close of human life. "Old age is the night of Life. Still night is full of magnificence, and for many it is more brilliant than the day." Thus Waller wrote :—

> "The soul's dark cottage, battered and decayed,
> Lets in new light thro' chinks that time has made.
> Stronger by weakness, wiser men become,
> As they draw near to their eternal home."

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* "Lochiel's Warning."

And from Gerard's Poems :—

"The Morn is gone;
. . . the light hath paled and passed;
But twilight shall be lovely as the dawn,
And night shall bring forgetfulness at last!"*

Sir Humphry Davy says, "Our ideas of futurity are perpetually expanding. Our desires and our hopes . . . seem to grasp an immensity. . . . This little earth is but a point from which we start towards a perfection of being." And Montaigne said, "Death is the origin of another life." "Death," says Weisman, "is to be looked upon as an occurrence which is advantageous to the species as a concession to the outer conditions of life, and not as an absolute necessity essentially inherent in life itself.†

"What a piece of work is Man! how noble in reason,"‡ and yet how true it is that we are only scholars—those of us "three score and ten," or it may be "four score," quite as much so as the boys. And are not all of us finding out that the more we learn the more clearly do we see how ignorant we really remain!

"So wonderful
Is human nature, none
May hope to keep his inmost spirit pure,
And walk *without perplexity* through life. §

And the late Lord Tennyson's last words :—

"Twilight and evening bell,
And after that the dark."

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* Andrew Lang's Translation after the Greek.

† "Essays upon Heredity," p. 26 (Oxford, 1891).

‡ "Hamlet," act. ii. sc. 2.

§ Goethe's "Iphigenia in Tauris," p. 202, translated by Anna Swanwick (Bohn, 1850).

THIRD LECTURE.

MATHEMATICS AMONGST THE ANCIENTS—EARLY CIVILIZATION AND DETERIORATION—ANCIENT MONUMENTS, ART, AND LEARNING.

GEOMETRY is the science of space without regard to any physical properties of its lines or portions, and its propositions are absolutely true.

Professor Tyndall has told us that "the desire and tendency of the present age is to connect itself organically with preceding ages." The expression of this desire is not limited to the connection of the material organisms of to-day with those of the geologic past, but is equally manifested in the domain of Mind.*

As to Man, of his surroundings, and his thoughts in prehistoric time, however, we are in ignorance or doubt, and even as to early historic time there is no consensus of opinion thereon. The only pure science seems to have been Geometry, on which no difference of opinion has existed, or is indeed possible.

Upwards of twenty-three centuries ago, two of the grandest of the old Greek philosophers, Pythagoras and Plato, appear to have singled out Geometry as

* "New Fragments," p. 1 (Longmans and Co., 1892).

the foundation of Truth. The former seems to have discovered the forty-seventh proposition of Euclid, while the latter shows that he had some far-reaching ideal before him when he inscribed over the Academy of Athens the famous words, "Medeis Ageometretos" ("Let no one ignorant of Geometry enter here"). Indeed, almost all the great thinkers of Ancient Greece were eminent Mathematical scholars, whilst, more—perhaps much more—than ten centuries earlier, Geometry appears to have been familiarly known to the Sages of the East.

The Chaldeans, Chinese, and Hindus, and the Egyptian Architects of Memphis, Thebes, and the Pyramids, studied Astronomy and Art. Earlier still—probably more than 3,000 years B.C.—some Eastern nations knew much of Geometry. Professor Bridges, writing upon the Quadrature of the Parabola according to the method of the Ancients, says, "With this attempt to give the reader some idea of the high state of perfection to which the Science of Geometry had been brought by that great Master (Archimedes, 250 B.C.), I conclude this Treatise."* Laplace writes: "The quarter of the terrestrial Meridian is subdivided in the same manner as at a very ancient period; for the measure of the Earth mentioned by Aristotle, the origin of which is unknown, gives 100,000 stadia to the quarter of the meridian." †

The theory that the progress of knowledge and civilization has been uniform since primeval days is by no means established. It would rather appear that the most ancient ruins and writings indicate

* "Three Conic Sections" (London, Cadell, 1811). See also Appendix.
† "System of the World," book i. ch. 12.

alternate progression and retrogression in cycles and eras: not by any means in a uniform manner, but the reverse, as regards the different races of mankind. Fergusson,* writing of the Ancient Architectural Monuments of India, shows that the most ancient were the finest, those less ancient giving evidence of declining Art. In modern times this degeneracy has continued, as exampled even in the Taj at Agra and the Golden Temple of the Sikhs—the most splendid in India. To this point we will return later on.

Of the eminent Philosophers of Greece, Aristotle was one of the greatest. He was a pupil of Plato, as Plato was of Socrates. "Wholly without a parallel in the history of mankind," says G. J. Romanes," † "there is scarcely any department of intelligent activity where the mind of this intellectual giant has not exercised more or less intelligence." He was tutor to Alexander the Great, who must have profited by such a master.

The great antiquity of Eastern learning is indicated incidentally in unexpected quarters. Thus Jamblichus says that the Egyptian Hermes was the god of all celestial knowledge; ‡ and Clemens of Alexandra says that his principal books were treated by the Ancient Egyptians with the most profound respect. The Greeks, who evidently derived their culture and religion from Egypt, represented Hermes as the inventor of Geometry, Logic (Reasoning), and Language, and the interpreter of the ancient Mys-

* "History of Indian and Eastern Architecture."
† *Contemporary Review*, Feb. 1891.
‡ Wilkinson, vol. v. ch. 18.

teries.* Pure Geometry, however, is not an invention. Its truths, being necessary and *Universal*, belong to all times, past and future, and evidently were known before historic dates. Aristæus, the reputed teacher of Euclid (B.C. 300), is said to have written five books on Conic Sections, and five on solid loci—all now lost. But such a fact, like some others already alluded to, or still to be so, indicates great knowledge of Mathematical science.

"Babylonia was the cradle of Astronomical observations. Long before the lofty towers of its Temples were reared . . . the leading stars had been named, a calendar had been formed, and the eclipses of the sun and moon recorded. The annual path of the sun through the sky had been divided into twelve sections, like the double hours of the day. . . . It was thus that the Zodiac first came into existence."† Herodotus states that Calisthenes the Philosopher obtained for Aristotle Chaldean observations for 1903 years, from the origin of the Babylonian Monarchy to the time of Alexander. The grandeur and extent of the City of Babylon as described by Herodotus, Ctesius, Pliny, Diodorus, Strabo, and other writers, almost exceed belief. The walls, Temple of Belus, Tower, Hanging Gardens, the Throne, and Image of solid gold, of 800 talents weight, seem to surpass in magnificence, and cast into the shade, all modern works. These were restored or erected by Nebuchadnezzar, one of the greatest Eastern builders the world has seen. Now all that remains of the old

* Bryant's "Ancient Mythology," vol. i. pp. 308, &c.

† Prof. A. H. Sayce's "Lectures on Ancient Babylon," p. 397 (Williams and Norgate, 1887).

Palaces is represented by the modern Mound of Amram, the chief, the largest, and most powerful city of antiquity, after twenty-five centuries of decay.

Notwithstanding some traditional obscurity, Pythagoras seems to have really possessed the true knowledge regarding the Sun, as being the Centre round which the heavenly bodies revolved, although Mr. Romanes, we think erroneously, believes that he only made a lucky guess of this fact. No writings of his are left us, and consequently his opinions have been handed down sadly obscured, and evidently misrepresented by traditions. Within a very few generations, the wisdom and learning of his School became lost to the world. *Probably many writings and manuscripts of that Age eventually found their way to the great Alexandrian Library, and perished in its ruins.* We know that Ptolemy (140 A.D.) founded his otherwise valuable Astronomical System upon the idea that our globe was the Centre, and so the false was stereotyped, and the true knowledge of the Heavens lost to mankind for another fourteen centuries. At length Copernicus (A.D. 1530) rediscovered, and hesitatingly revealed, what Pythagoras seems to have taught twenty centuries before! The burning of the Alexandrian Library was probably one of the greatest losses, intellectually and historically, which Learning has sustained.

Mr. T. Tyler speaks of "the Pythagorean connection of the equilateral triangle with the Goddess of Wisdom," adding, "Such indications of Pythagoreanism . . . are in accordance with the well-known traditions which tell of the travels of Pythagoras,

and connect the Pythagorean doctrines with the East." *

There are not wanting indications that the Polar Compass and many other great discoveries even of the present Age, were known to the Ancient Chinese, and other Eastern nations, and it was said by Humboldt that 1,000 years B.C. they had magnetic carriages in which to find their way across the plains of Tartary. But such discoveries had become buried under the "dark Ages," which, at one period or another, no portion of the world seems to have escaped. For instance, the Thames Tunnel was only sixty years ago one of the world's wonders, but the ancient Babylonians had their Tunnel under the Euphrates some twenty-five centuries ago, while Egypt had her Canal many centuries before that of Suez. Geoffrey Chaucer well said that there "is nothing new but what has once been old." This is specially true as regards Philosophy; for many of our modern advanced thinkers in several important points evidently resemble the Ancient Greeks, such as Anaxagoras, Democritus, and others.

Surprise has been expressed that the ancients' mature knowledge of the abstruse Geometry of the Conic Sections, so far as we know, had gone to sleep for some two thousand years, until the days of Descartes, Newton, and Leibnitz, when important practical use was found for the ancient Geometrical foundations. Even now, and making allowance for Eastern exaggeration, where are our modern Works of Architecture and Art which excel or even equal the magnificent structures of the East, or even the

* *Academy*, August, 1887, p. 107.

less ancient Greek Art? With all the aids of the giant steam, will our great works be as enduring as theirs, supposed to have been raised by the mere aid of the old "Mechanical Powers"? Then as to poetical genius, can we find a modern Homer?

Almost all our knowledge of the more ancient Eastern Civilization comes to us through Greek Historians and Travellers, and it is not very uncharitable to think that it has not been absolutely impartial, seeing that Greek Art, Architecture, and Science borrowed very much from Egypt and Chaldea without acknowledgment. Many of the wonderful tales regarding such half-mythical personages as Zoroaster (1500 B.C.?), or even Pythagoras, evince their legendary origin. Yet such Myths may probably indicate that true science had been really in a highly advanced state in their schools, but had subsequently been lost through the ignorance of a *later Age*, and its universal tendency to attribute all knowledge, apparently marvellous, to the Oracles of the gods. Carlyle suggested that their polity presupposes a civilization of 1,000 years or more before Homer. May it not be said that the Greeks gathered the dying embers of their own and of the ancient Eastern Wisdom and Civilization, and with the fresh genius of youth once more kindled them into a blaze, culminating in the era of the great Alexander? This again commenced to degenerate and gradually sank into mediocrity during the ten following centuries, and thereafter into farther centuries of absolute obscurity, except in so far as Science was wisely patronized by the Mahomedan Caliphs of Bagdad. Professor J. W. Draper said, "Well might the

Egyptian priests say to the earliest Greek philosophers, 'You are mere children, you know nothing of all the past.'" Perhaps it is natural for each succeeding Age to minimize and undervalue the Knowledge and Wisdom of its predecessor! That was not Southey's idea when he wrote :—

> "The mighty minds of old;
> My never-failing friends are they,
> With whom I converse day by day."

One remarkable feature of some of the most ancient buildings is the exact knowledge they show of Astronomical facts, and this infers a correspondingly large knowledge of Geometry by their builders.

It thus appears that the Science of Geometry stands apart and altogether *paramount;* long before historic time it seems to have existed in the world. Indeed, from these and numerous considerations yet to come before us, is it not probable that, from the primeval age down to the Greek revival, there had been a period, if not a series of periods, of gradual *decline* in Art, Architecture, and Scientific knowledge? At the same time this decline appears to have been accompanied by a *corresponding degradation* of the several Religions of the world. Waving the question of a prior primitive religion—say from the comparatively enlightened Sun-worship and the oldest Veda-religion, down to the less ancient, childish, abominable, and cruel rites of Egypt and Phœnicia. "Thus Indian-like, religious in their error, those adored the sun;" * but these, in some respects, became intellectually degraded, somewhat approaching to the beasts they worshipped.

* "All's Well that Ends Well," act i. sc. 3.

Professor Max Müller—writing in a somewhat different connection—controverts the once popular notion that all religions *begin* with Fetishism. "It *is* not a low or primitive form of religion, but only *the* corruption of something higher and better." And Principal Caird adds: "No doubt Fetishism may and does exist as the degenerate form of a purer faith—as the fossilized form of what was once instinct with spiritual life." * Sir A. Helps, in his "Spanish Conquest of America," gives us a glimpse of the original beauty of Sun-worship; but, even there, it was already corrupted by the introduction of numerous other gods.

Since the discovery of the famous Moabite Stone and the wonderful Mycenæ excavations by Schliemann, our knowledge of the ancient world has been greatly enriched; and more especially have recent years been revealing facts hitherto concealed underground, not merely for centuries, but for thousands of years. Recently, B.C. 900 was generally considered the probable farthest date of which we could pretend to have any accurate knowledge. Of written knowledge, Homer's poems, describing the Siege of Troy, supposed to have taken place about 1200 B.C., were reckoned our oldest writings, dating from about B.C. 800—second only to the books of the Hebrews, and the very oldest of the Vedas. But opinions on this point greatly differ, as we shall afterwards see. We are without any trustworthy information as to Chinese writings, but we are told that the oldest "were based upon the ancient Accadian-Chaldea pictures and hieroglyphs, whose

* "Philosophy of Religion," p. 328 (1880).

locality was the borders of the Persian Gulf" (*Lacouperie*). Perhaps one of the most ancient seaports was in the land of Ur of the Chaldees. The city of Ur seems to have been built on the then border of the Persian Gulf. Here Terah, the father of Abraham, was born during the Second Dynasty of the Chaldean Kings, who adorned it with palaces and temples. A gigantic temple had been erected in honour of Hanki, the Moon god, and Terah seems to have been a carver and seller of idols. The Cylinders and Bricks of Ur, some of which are in the British Museum, are interesting as showing the writings to be of the cuneiform character, and indicate not an ignorant but probably a literary people.

The difficulties of such investigations as these are twofold. We are perplexed not only by the contradictory character of the chronology, but still more by the impossibility of distinguishing, amongst the multitudes of Myths and Legends, to what extent they are mere fables, or poetic exaggerations of real history. John Milton said that "The beginning of Nations those excepted of whom sacred books have spoken is to this day unknown. Not only the beginning but the deeds also of many succeeding ages, yea periods of ages, either wholly unknown or obscured or blemished with fables." But he adds that some narratives, once considered fables, "contain in them many footsteps and reliques of something true."

However, as Dr. Reginald Stuart Poole says "These discoveries by excavation show the existence, at a period long before the ninth century B.C. of the Homeric palace, and of ancient tombs containing works of Art, some of a very primitive

character, *far superior* to those of . . . the sixth century" (that is, more than 300 years later), "and of a different and unknown style. The splendid sword blades of Mycenæ are an unexpected revelation of this style, pointing back to centuries of progress, *before their remote date.* . . . The strange consequence of this proof is to show that Art fell and rose between the age of Mycenæ and B.C. 600." *

These considerations point to two conclusions, which we may expect to see confirmed: 1st, That Civilization traced backwards does not, as is very generally supposed, necessarily point to a condition of *original* barbarism; for the inductions of Ethnology—the science of animal races—more often indicate quite the reverse; 2nd, That Civilization has not always progressed, but has frequently, and even for centuries, retrograded. The truth of the Evolution theory (*limited*), in so far as mere animal physical bodies are concerned, may possibly be admitted, but do not these considerations refuse to confirm the idea of a continuous evolution of animal Instinct up to the human Mind?

But we are still ignorant of the epoch of Man upon the Earth, unless in so far as the ancient Hebrew manuscripts imperfectly define it. We have numerous other manuscripts, such as the important Sanscrit writings of India and the Chinese literature; but these are of little value chronologically, and are not proved to be older than those of Chaldea and Egypt. The Samaritan Pentateuch differs somewhat from the Jewish, both in its Hebrew form and in the Greek Septuagint.

* *Contemporary Review*, p. 360, 1887.

This variation of Chronologies may partly arise from the fact that, in almost all of them, the calculations are built up largely on traditions. Canon Rawlinson says: "The Jews constantly abbreviated genealogies by the omissions of a portion of the names." And M. Chaleas remarks that events such as those of the Exodus "were not entitled to be inscribed on the monuments;" nothing was registered except successes and triumphs. Traditions relating to great convulsions of nature, or national sufferings, may, we think, be assumed to be true in part, but otherwise intermixed with absurd fables and mythological gods, all indicating national vanity. As to the epoch of the "Creation of the Heaven and the Earth," nothing whatever is known. The Hebrew Scripture professes to announce only the *fact*, yet sheds not one ray upon the *when;* but the Rocks speak of a vast antiquity. "There are two fundamental conditions of material existence—Space and Time—Space-cosmos and Time-cosmos. These have been reduced to law and order by science, in the one case chiefly by Kepler and Newton, in the other by Agassiz and Darwin." *

As the Evolution theory requires an immense period of time, the two questions, first the Antiquity of the Earth, and secondly that of Man—become of great importance. As to Man, the popular 6,000 years is very questionable. There is extraordinary divergence of opinion on these points amongst different authorities.

Another question has arisen on which strikingly opposite opinions are entertained; to wit, the time

* "Evolution," by Joseph Le Conte, p. 48 (London: Chapman and Hall).

required by man for the advancement from barbarism to civilization, or conversely for his degradation from civilization to barbarism. It has usually been assumed that such changes would necessarily involve a period of many thousand years. Baron Nordenskiöld, however, states that "two people of different race and language placed under similar conditions *rapidly* converge into common features and character," and he notices the quick absorption into the mass of any foreign element casually introduced. He also adds the important conclusion from his observations "that the changes which can be ascertained to have taken place historically are changes not of progression, but of decadence." He considers that the lost Danes who are known to have colonized Greenland in the eighth century A.D., of whom nothing has been heard since 1406, have been converted into Eskimos. In modern Greece there is yet in the faces and attitudes of the people some family likeness to their fathers of ancient Greece. Mr. Rodd says: "The plough has scarcely altered since the days of Hesiod," and "as Aristophanes summed up the household gear, so are still the limits of their ambition." *

The Library of Nineveh mainly consisted of Bricks, Cylinders, and Tablets, which were broken and scattered when the city was destroyed; and the larger proportion of the Texts we have are imperfect. The late George Smith, of the British Museum, who was himself an able and successful explorer in Assyria, in succession to Rawlinson and Layard, gives an interesting engraved specimen of

* "Customs and Lore of Modern Greece" (David Stott, London, 1892).

one of these Tablets, made up of its fragments, so far as found, and he says: "There can be no doubt that, if the inscriptions were perfect, they would present very little difficulty to the translator."* The Texts given by Mr. Smith are very important as far as they go, because they profess to give some account of "the Creation of the World from Chaos, as also of the Moon, and *then* of the Sun, of the Animals, and last of Man, who was made upright and free from evil, and endowed by the gods with the noble faculty of Speech." But, like other tablets, they give no dates, and hence their Chronological value is immensely diminished.

We will quote no more than five lines from the text of the legend of Sargon, as given by Prof. Sayce :—

1. Sargon the mighty king, the King of Accad (am) I.
4. (My) mother the princess conceived; in a secret place she brought me forth;
12. For 45 (?) years I ruled the kingdom.
13. The men of the black-headed race I governed I (organized).
14. Over rugged mountains in chariots of bronze I rode.

These Texts supply important proof that in those days of remote antiquity men were civilized more highly than some much more recent nationalities seem to have been. To ride over rugged mountains in chariots of bronze evinces a very high state of mechanical science, and a knowledge of working in metals equal to those of modern times. Indeed, even now such a feat is not accomplished—what farther discoveries in Electric Science may yet do for us we can neither predict nor limit.

One peculiarity which distinguishes the ancient

* "The Chaldean Account of Genesis," pp. 9–15 (Sampson Low and Co.).

from modern architecture is its gigantic, or rather its massive, Monolithic character. As already stated, we have no modern buildings which can be compared with the gigantic Walls and Belus Tower of Babylon, or with the yet visible Pyramids, Obelisk, Sphinxes, Sun-Temples, and the Colossal Statues of Thebes. Even Ancient Greek architecture is less magnificent.

The *finest* ancient works of Egypt were evidently those of the earliest Dynasties, which show *the greatest refinement of Architecture and perfection* of workmanship. Both the paintings and sculptures on the walls of the Tombs are remarkably delicate, and executed with marvellous skill. Speaking of the Eighteenth Dynasty, Canon Rawlinson says the "edifices were considered the most tasteful, most complete and brilliant creations which ever left the hands of an Egyptian artist." "They belong to the time of the matchless splendour of Egyptian art." Those of the later Dynasties show a gradual decline, though still admirable; and the indications of coincident intellectual conditions and events show the same decline. John Ruskin assures us that "a nation's history, though uninscribed by the historian's pen, is yet written more truthfully, more lastingly, on the deep wrought blocks of stone that tell of her domesticities, her manufactures, and her religion. All great architecture is the exponent of national virtue, and all debased architecture the exponent of national vice and shame."

The original Sun-worship was quickly debased by the introduction of Osiris and other gods, also of the sacred bull Apis, and its Cow mother. Upon

the grand tombs or underground Temples of the Sacred Bulls, a portion of which yet remains almost entire, enormous cost and labour must have been expended. There are still to be seen near Memphis about twenty of the Sarcophagi, or Bull coffins, weighing each upwards of sixty tons, and measuring about fourteen feet by seven, and ten feet high. They are all made of dark slightly bluish-coloured granite, beautifully finished, some bearing inscriptions of interest, and said "to have cost one hundred talents of silver, or about £20,000 each." *

The land of Egypt—an inexhaustible mine of antiquities—now seems to be one vast graveyard—its soil the *dust* of the human race, and its grandest monuments gravestones!

This Apis (Bull) worship is perhaps a debased worship of *Natural Force.* It seems to have attained its climax about the period of the Seventeenth Dynasty. The yet more ancient worship of the Sun continued under different names, and subsequently Serpent and other Animal worship was prominent. The most important name of the Nineteenth Dynasty was that of Rameses II. This monarch has become famous by the remains of his sculptures, which were of extraordinary size and massiveness. The grand ruins of the Ramesæum, a vast Temple which seems to have been built in commemoration of the victories achieved in Palestine and Syria, are to some extent still standing. They are a fine representation of Ancient Egyptian workmanship, well indicating its then immense size. Right in front of it are the remains of that un-

* "Ulysses," by P. G. Palgrave (Macmillan, 1888).

paralleled granite-seated Colossus, once Rameses, now a vast ruin. Its mutilated toes are five and a half feet across! We can thus judge of the entire statue. It was, throne and all, cut out of one solid block, and is estimated to have been nearly 900 tons in weight; "how brought to its site, carved, perfectioned, furbished, and set up, is a difficult problem. Scarcely less of a problem is to know who broke it up, . . . a thousand steam sledge-hammers would seem insufficient for the task." * Such advancement in Mechanics and Art are most surprising.

Of this Monarch there are several statues at the great Temple Abou Simbel in Nubia. Two of them are of singularly fine workmanship. One of the faces is said by Irby and Mangles to exhibit the most perfect specimen of beauty imaginable, and both seem to indicate intellectual refinement. One peculiarity of these Egyptian statues is the fact that they are often disproportioned as regards size of parts, the artists' care being devoted to the faces. On Art Sculpture and some other important points the world even then showed decided retrogression. It was well said by a famous painter that "without Art this world would be one great desert."

This method of commemorating greatness by extravagant size of Statuary seems to have reached its climax in the last-mentioned era, but still continued for centuries a characteristic of the East. Our best modern granite works cannot compare with those of ancient Egypt for size and perfection of workmanship. With all our boasted advance-

* "Ulysses," by P. G. Palgrave (Macmillan, 1888).

ment in machinery, our heads and our tools must be in some respects inferior to those of the Ancients.

The difficulties connected with quarrying, removing, dressing, and sculpturing of such enormous masses of granite as were used in many of these ancient works must have been immense. In the greatest of modern works no such difficulties arose. The greatest wonder of the world is now the Forth Bridge, a result of our highest architectural and mechanical genius. It may be compared with the Pyramid of Cheops—both are evidences of indomitable skill and perseverance in building up a multitude of parts into a great whole. But to erect and sculpture an immense monolith into a beautiful statue is not only an artistic work, but one which demands great scientific appliances, and a high knowledge of mechanical laws. No other explanation will suffice; and therefore we presume to think that besides the genius of Art, high *mechanical*, as well as astronomical and mathematical, sciences were known to several ancient peoples, how since lost we cannot tell.

However, it is apparent that this ambition to excel in size is again rising in the present era. Instead of the purity of designs and exquisite finish hitherto prevalent in imitation of the ancient Greek art, we are striving to excel in colossal works generally. Witness this Forth Bridge, the famous statue of "Liberty," the great suspension bridge which spans the East River at New York, the Suez and the Manchester and other projected sea canals, the two Alpine tunnels, the fifteen-thousand-ton Atlantic

steam ships, the Eiffel Tower, the Chicago Exhibition, the hundred-ton guns, and other monster projects still in the future. The Colossal Age has evidently returned; we fear it will fall short of the Ancient in artistic merits.

The idea that size represented greatness seems to have prevailed in ancient times in the most widely separated localities of the earth. Thus we read of Odin, the god of the Northern kingdoms—Sweden, Norway, and Iceland (whose son was Baldr, the Sun-god)—that his horse had eight legs. A recent traveller in Chinese Manchuria, describing a Buddhist Cave-Temple, situated high up near the apex of the principal peak of the "Mountain of the Sages," thus writes: "At last the gloomy portal is reached. Two huge idols guard the entry. . . . In the depth of a recess stand three or four shrines. These are Buddha and his eighteen apostles: Lao-yeh, the Rain-god, the god of the Ten Diseases, and the Queen of Heaven; . . . there is an *eighteen-armed* Buddha . . . beloved in Orissa, and a god whom the ignorant Bonzes could not name . . . exactly like the figure in the great temple at Canton." * Alike in all cases, something personally large and superhuman was needed to represent greatness. The same idea seems to have existed amongst the Toltecs of ancient Mexico. Built into the ruins of the pyramids at Isamal were two colossal *heads*, one seven feet and the other thirteen feet high! Their origin is unknown, but probably they represented some deity or great man.

* "The Long White Mountain; or, a Journey in Manchuria," H. E. M. James, p. 396 (Longmans, 1888).

The Spaniards are said to have destroyed a historic records of the ancient inhabitants of Centr America; but M. Charnay * says: "I firmly believ they came from the extreme East, . . . their Arch tecture is so like the Japanese as to seem identica . . . their decorative designs resemble the Chinese whilst their customs, habits, sculpture, languag castes, and polity recall the Malays in Cambodi Annam, and Java." They built their edifices o pyramids, of three to five stories high; while a Lowoe, in Java, some temples are built on pyramid having a staircase on the slope, like those of th Toltecs in Mexico. Such resemblances of work s very far apart are most remarkable.

Little as we know of the religion and habits c thought of our remote ancestors, the innumerabl legends of almost all countries have in many cases more or less evident resemblance.

"If," says Max Müller, "we find the same word with the same meaning in Sanskrit, Persian, Arme nian, Greek, Latin, Celtic, Slavonic, and Teutonic what shall we say? Either the words must have bee borrowed from one language by the other, or the must have belonged to an older language, fror which all these so-called Aryan languages wer derived." "And," says Mr. Buckland, "when w find in India, Japan, Egypt, New Guinea, Ne Zealand, Alaska, Greenland, and America, the cus tom of tattooing carried out in precisely the sam manner," we may assume that "they all derive such customs from a common source, or that a

* "The Ancient Cities of the New World," by Désiré Charnay. Translated by M. Gonini (Chapman and Hall).

some unknown period intercourse existed of which these things are the surviving traces." *

One of the principal factors in the promotion of Civilization is Commerce. "Mr. Petrie's discoveries in Egypt prove that before the days of Abraham an extensive commerce was carried on between that country, Greece, and Phœnicia; for he has found in the same tomb Greek, Phœnician, Cypriote, and Egyptian pottery, some of which he identifies with that found by Schliemann at Mycenæ, fixing the approximate date of manufacture at 1400 to 1200 B.C." † Of these last some have their counterparts in Assyria, and Assyrian, Greek, and Egyptian influences are plainly perceptible in Etruria; while, as regards gold and bronze relics of Etruria and Ireland, there appears in many cases to be absolute identity. We are here dealing with myths of prehistoric times; but some have supposed that the Pelasgi, or whoever were the constructors of the Cyclopean buildings, who preceded the Etruscans in Italy, must also have found their way to Ireland.

One of the more recent discoveries is that of the remains found in Cyprus, which seem to point to an age extremely ancient. Writing of these, Prof. A. H. Sayce says that "Sargon of *Accad*, whose date is known to be as remote as B.C. 3800, crossed over to Cyprus at the close of one of his campaigns against Syria, and a Cylinder, bearing the name of his son and successor, was found in the island." ‡

* "Anthropological Studies," p. 232 (Ward and Downey, 1891).

† "Anthropological Studies," chap. xv.

‡ *Contemporary Review*, September, 1887, p. 451.

There is, perhaps, room for doubting this Chronology; but almost all such indications of prehistoric times point to the fact that Civilization, Learning, and Art came originally from Egypt and the East.

In an interesting Lecture, recently delivered in the British Museum, on the "Art of Ancient Babylonia," Mr. Wm. St. Chad Boscawen mentioned that "some very ancient Statues were recently brought to light by Mons. de Sazzec, when he discovered the city of Tello, on the banks of the river Tigris. Within a grand quadrangle were six seated Statues—the sitting posture testifying to their divine or royal character." There also he found a head of Tartar type, proving its Turanian or non-Semitic origin, which dates back, as he thinks, to B.C. 2800. Upon the knees of one royal figure was a tablet upon which was *accurately* engraved a plan of the City, and by its side lay the "bur," or graver, used by the artist. The stone tablet was so hard as to render it impossible to be carved by any English chisel.

Mr. Boscawen adds: "It is curious that in the earliest Babylonian Art, as in the Archaic Egyptian, there is more *exact reproduction of the object than in later Art.*" The use of metal in sculpture always marks progress. The reader is aware that Genesis claims a much earlier knowledge of metals than this. It was used in Egypt in the Fourth Dynasty, and we find metal figures in Babylon that were made 2800 B.C. Three of these figures are to-day in the British Museum, and they represent the priests of the Sun-god holding fir cones in their hands, and,

on bended-knees, kindling the sacred fire. A bronze figure of the same period is now in the Louvre.

The specimens of this period are not the first, nor the finest, specimens of Babylonian Art, but are said to be superior to those even of the Early Greek.

One of the Ancient Hymns, if genuine, is doubly valuable, as showing the then advanced knowledge of working in metals. "May sickness and sin pass away, may my soul shine as does the brass that is poured out of the melter's mould." There seems to be some reference here to the belief in Immortality of the soul. Referring to a still more early period, Mr. Boscawen says that "The Seals of Babylon were beautifully engraved, and were of great national and political importance. One which has recently been discovered was made B.C. 3800, and belonged to the Scribe of the great mythic Sargon."

Another recent writer on Chaldea appears to carry back the half-mythical history of the East to a still more remote antiquity. Chaldea "points to a monumentally indicated date, nearly 4000 B.C. This is perhaps as much as Egypt can do. Her oldest authentic monuments, and her great Pyramids, are considerably later." Mr. F. Hommel says, "If the Semites were already settled in Northern Babylonia (Accad) in the beginning of the fourth thousand B.C., and in possession of the fully developed Shumiro-Accadian culture adopted by them . . . from Shumin —then the latter must naturally be far older still, and have existed in its completed form in the fifth thousand B.C.—an age to which I now unhesitatingly ascribe the South Babylonian incantations." *

* "Chaldea," by Z. A. Ragozin, p. 364 (T. Fisher Unwin).

Originally the religion of the Phœnicians would seem to have been Monotheistic, and to have possessed a lofty idea of the great Power which had created and which ruled the world. They called Him El, "great"; Baal, "Lord"; "Lord of Heaven," and the like. They regarded Him as wholly distinct from matter, and believed Him to have brought into existence all other beings and all material things. But this early belief, as in other nations, was soon overlaid with superstitions, and Monotheism passed into Polytheism,* and the worship of Sun and Moon and Fire. All their ritual infers a belief in Immortality.

Here, to use the words of Mr. Palgrave, "there is no room for idols, their gods themselves being ever present in their embodiment or their work." † In the third stage, idols appear as such, and next as supernumerary gods. Then follow great temples, gigantic statues, and human sacrifice. The sacrifice of animals had already been practised, and it is difficult to see at what place in the series it commenced. According to the Vedic poets, "prayer was better than sacrifice." The general idea conveyed is not one of progression, but of retrogression —a gradual descent from the spiritual to the materialistic, and a corresponding descent from a high degree of material and artistic refinement to a lower one.

Mr. Froude tells us that "It was among the Semitic nations that the propitiatory immolation of a human being first became an institution. Homer knew nothing of it. . . . By the Semitic nations of

* "Phœnicia," p. 29 † "Ulysses," p. 221.

Palestine, the oldest born of man and beast was supposed to belong to the gods. . . . At some time in the interval between Homer and the Persian wars, this singular superstition was carried into Greece, and at once incorporated in the received mythology. . . . No less than six of the plays of Euripides revolve on this Semitic innovation on the creed of Homer. . . . It might be doubted, so far, whether Euripides obliged us to believe that human sacrifices were *actually* offered to the gods in Greece itself."

The area of highest civilization in ancient times seems to have been Egypt and Palestine, with the lands between the Euphrates and Tigris, and southward towards Arabia and the Persian Gulf. But even the Tablets of Assur-bani-pal are not older than the eighth century B.C., although they relate to events probably more than a thousand years before. Yet we look in vain for any indication of date or relative age of any historical record they may contain. The name of Sargon of Accad seems to refer to a much earlier date, and to a higher state of learning and civilization. He is said to have had "two standard works on Astronomy and Terrestrial Omens, consisting of seventy-two books, relating to such matters as the Conjunction of the Sun and Moon, and the phases of Venus, and of Comets." Does not this suggest an early invention of the Telescope (since the phases of Venus are not visible to the naked eye), and afford another indication of an advanced state of education—greatly superior to that of much less ancient eras? If so, a period of retrogression in Science must have supervened.

Much speculation yet exists as to prehistoric times. The principal records we have left of them are the Bricks and Tablets dug out of the ruins of Nineveh; the Monuments and Inscriptions of Egypt, the Books of Moses, and occasional Manuscripts otherwise found, together with the Veda Hymns and Sanscrit Texts of India. But no definite history, no dates, no clear evidence of great antiquity, such as this speculation indicates, are obtainable from any of them. Neither the name of India nor of the Veda is mentioned in the more ancient Inscriptions of Egypt and Babylon.* The oldest monument of Indian speech is the Veda. "It is curious that whenever we have sacred books they represent to us the oldest language of the country." † The Writings of Moses may not be the oldest, for according to some learned critics his Creation history rests not upon mere tradition, but on two evidently different Writings probably as old as the days of Adam! A similar statement may be made regarding the history of the Deluge which Moses seems to have compiled from two evidently different Writings—probably of Noah's day (see Smith's Bible Dictionary, 1870, art. Pentateuch, by Dr. Perowne). We elsewhere refer to other indications of extreme refinement in primitive times as opposed to the sometime popular theory of an original Savagism.

Dr. Sayce has recently ‡ thrown new light upon the early civilization of Arabia, a country situate in

* "Physical Religion," by F. Max Müller, p. 24 (Longmans and Co., 1891).

† "Natural Religion," p. 295 (Longmans and Co.).

‡ *Contemporary Review*, December, 1890.

the centre of the world's activities, yet remaining unknown to modern research, in a degree almost unprecedented. We know more of Kamschatka and Japan—countries the most remote. He finds that a kingdom of great antiquity existed in South Arabia long prior to that of Suba or Sheba; namely, the Minæan kingdom. He says, "We are already acquainted with the names of thirty-three Minæan Sovereigns. . . . They were a literary people; they used an alphabetic system of writing. . . . If their records are reliable they will be far older than the oldest known inscription in Phœnician letters." Canon Isaac Taylor, and the discoveries of Glaser and Hommel, support this view.

The various nations of the world have been generally classed under three great divisions—the Hamitic race, originally occupying the south and the extreme east; the Semitic, occupying the central position, such as the Chaldeans, Assyrians, Babylonians, Assyrians, Hebrews, Moabites, Phœnicians, and Arabs; and the Aryans, who filled the north and European countries generally. Each of these in turn, and in this order, seems to have been the master and ruler of the world. Some writers think these people were the descendants of Ham, Shem, and Japheth respectively. The Aryans were generally said to have been located in Asia, but "the Archæological discoveries of the last thirty years have placed the whole question of early Aryan civilization on a new footing." Of course they may have come from Central Asia originally, but it is now shown by Dr. Isaac Taylor and other learned authorities that they early took possession of Central

Europe, and that the inhabitants of these various countries, including our own, are of Aryan descent, less or more mixed. Dr. Taylor treats of the whole subject at great length, and to his book the reader interested in the matter should refer.*

"Aryan speech is rapidly extending its domain. In the neolithic period Aryan languages can hardly have been spoken by more than a million persons. At the present time they are spoken probably by six hundred millions." † Language possesses continuity and belonging to the UNIVERSAL sphere can never be lost.

The moral characteristics of the Semites have been described as pliability, combined with iron fixedness of purpose; depth and force; a yearning for dreamy ease; a capacity for the hardest work; "religiousness, and originally an intensely spiritual conception of the Deity;" ‡ and a belief in Immortality. These qualities were sometimes combined with persecuting intolerance, from which, however, the Phœnicians, like their successors the Greeks, were generally free.

A quaint writer of nearly a century ago made the curious suggestion that, to a spectator standing at Jerusalem and looking east, the view would mentally appear a mosaic of pearls and gold seen through a microscope—Arabia, Persia, India, China, in a state of stagnant repose. Looking west it would seem a vast expanse; free and open as through a telescope —Greece, Rome, Gaul, England, America, all in a state of active progression.

* "The Origin of the Aryan," by Canon Isaac Taylor.
† Ibid. p. 208. ‡ "Phœnicia," p. 25.

FOURTH LECTURE.

OF EVIDENCE — THE INCONCEIVABLE — THE EMPIRICAL AND THE SPIRITUAL—GRAVITATION—REST—TIME.

IN now resuming our argument proper, we will formally do so by stating a few preliminary facts.

Truth impresses itself upon the Mind by four different methods or kinds of evidence. First, *The Senses*, by which we are convinced that Matter and external Nature exist. Second, *Personal Witnesses*, by whose testimony (for instance) we believe that Japan exists, although we may never have seen it.

To some thinkers, these first two kinds of evidence are not satisfactory. The party of Berkeley (1684 A.D.) believe that Matter does not exist as substance, but merely in the ideal, and that the evidence of our senses is illusory: others with Hume (1711), the recognized champion of Materialism, that there is no purely spiritual existence in Nature; and, amidst this divergency, confusion reigns of course. This confusion arises, we believe, from their not realizing the fact, long ago pointed out, that the Mind *cannot* know or understand Matter farther than as the seat of certain qualities. Mind can, at least to a large extent, understand and feel what Mind is, because

each man can by introspection study his own—reason upon its faculties, its powers, and limitations, and thence, by intuition, understand somewhat of other minds. This, no doubt, is disputed, but what proposition is not subject to be controverted by some philosopher? To use the words of a recent writer: "So far from being unknowable, the Soul (Mind) is the most knowable existence which the world contains." * If the reader of this volume will carefully *introspect* his own mind in doubtful cases, he will often be able to corroborate the writer's views—or possibly to see cause for their rejection. But "Man," as Shakespeare says—

> "Most ignorant of what he's most assur'd—
> *His glassy essence*
> Plays such fantastic tricks." †

This theory as to Matter in relation to Mind is nothing new. Kant says: "We should not ever understand what Matter is, even if any one could state it to us." ‡ Herbert Spencer, than whom, perhaps, no modern writer has more fully studied such subjects, confesses that "the ultimate unit of Matter admits of no consistent conception"; and again, he speaks of "the mystery which Matter universally presents, and which proves to be absolute." § Professor Tait admits that "the discovery of the ultimate nature of Matter is probably beyond the range of human intelligence." || An old writer represented that Mind and Matter were the opposites

* "Agnosticism," by Dr. Momerie, p. 44 (Blackwood, 1884).
† "Measure for Measure," act. iv. sc. 2.
‡ "Critick of Pure Reason," i. 251 (William Pickering, 1838).
§ "The Study of Sociology," ch. xii. p. 311 (H. S. King and Co., 1873).
|| "Properties of Matter," p. 15 (A. and C. Black, 1885).

of each other, like an object and its image—that Matter was altogether subordinate to Mind, exhibiting mere Types of its Truths—that everything in Nature, indeed, is a real substance; but, at the same time, a visible Type of some corresponding mental or spiritual Truth or Idea. According to the Buddhistic ideas, a prominent doctrine of mysticism is "that all things in the unseen world have their counterpart in the seen," and that everything existing in the upper world is to be found as it were in a copy upon earth. Still the Whole is *One.**

But all speculations such as these concern merely the relations of Matter to Mind, and instead of explaining they evade the real question. "What is the ultimate essence of Matter?" Mr. Edward Clodd says: "Since the ultimate nature of Matter remains unknown and unknowable, we can only infer what it *is* by learning what it *does*." † Another writer of old date, probably having in view the ideas of the Gnostics, suggested the possibility "that the origin of all things is Fire;" and having said this, his search even in imagination was ended.

While Matter is thus unknowable and undefinable by the Mind, Eternity and Infinite Space, both Universal Truths, are incomprehensible by it. Time and Space limited, however, are Natural facts. Perhaps Eternity might be described thus: "A Thought, consisting of *the Present* (a geometrical point); *the Before*, without a beginning; and *the After*, without an end." But as to Matter, what words can be applied to it other than those of

* "Buddhism in Christendom," by A. S. Lillie (Kegan Paul, 1887).

† "The Story of Creation," p. 7 (Longmans, 1888).

Spencer—"A Mystery"—"Absolute"—not to be defined?

Doubters of this statement should search out the opinions of the great philosophers, metaphysical as well as experimental, who have tried to define what Matter is. Some recent writers have seen fit to disparage Metaphysics, but Kant elevates it into a science, and John Stuart Mill defends it as such. Certainly both methods of approaching its investigation are better than either alone, and each may shed much light upon the other, whether they lead to similar or to opposite opinions. So also Plato may be profitably studied with Aristotle, Euclid with Archimedes, Descartes with Galileo, Leibnitz with Locke, and, in a somewhat analogous way, Philosophy with Science, Reason with Instinct, the widening vision of the Eye with the contracted intensity of Microscopic vision, or, finally, the Universal with the Empirical.

As a specimen of diversity and contradiction, the reader should refer to a list of twenty-five definitions of Matter given by Professor Flint. As Mr. G. F. Parsons says, "Psychology is the least developed science among the Western nations. Its students have not succeeded yet in attaining an equal height with Plato." *

A learned writer † of some eminence has recently sought to show that there are but three logically possible theories of the World of Being—First, Materialism, which supposes Matter in Motion to be the Ultimate, and therefore the cause of Mind;

* "Materialism," *Atlantic Monthly*, August, 1887, p. 169.

† G. J. Romanes, *Contemporary Review*, July, 1886, p. 44.

next, Spiritualism, which supposes Mind to be the Ultimate, and therefore the cause of Matter in Motion; lastly, the theory of Monism, which supposes Matter in Motion to be substantially *identical* with Mind—and argues that the last-mentioned theory is "the only one which satisfies all the facts of feeling and observation." To most readers we think theories so doubtful will seem equivalent to an admission that *nothing whatever* is known as to what Matter itself is.

But Matter is not the only thing of which Mind is ignorant. Setting aside the mystery of Life, Light and also Gravitation yet await a clear definition, if indeed they are susceptible of definition. They are simple ideas, to use the words of Dr. Isaac Taylor, and so may be apprehended. No doubt, in a sense, these two may be assumed to be properties of Matter, although different properties—Light is a form or product of Heat, and Heat of combustion or friction—a transmutation of Force or of motion. Gravity, so far as appears, does not alter Matter, and is not itself decreased by age or use. Yet both belong to the NATURAL sphere. That there is another kind of Light belonging to the UNIVERSAL or spiritual sphere is conceivable, although we cannot define it. Mr. Laurence Oliphant has well said that "the main cause of differences has arisen from the attempt to define the indefinable, . . . the use of terms either not susceptible of accurate definition, or for which none could be found by common consent."

However, this word "conceivable," which we frequently use in our argument, requires to be

clearly defined. There are theories which are probable, and others which are improbable. There are some conceivable and some inconceivable. But there is no relation between the two words, affirmative or negative; for many theories which are most improbable are quite conceivable, and some things which are conceivable may prove either true or untrue, while those *really* inconceivable must be false. The Probable, said Bishop Butler, is a law of Life and a guide to Knowledge: especially so in Astronomy and other sciences.

All the NATURAL Truths are conceivable, because experimentally proved, and any alteration of them is to us conceivably possible only by the fiat of the Original Creator. For that other NATURAL Laws, in some respects different from ours, may exist in some other System of Planets, however improbable, is not inconceivable. On the other hand, any alteration of the UNIVERSAL Truths, either in our World or in the Planets of any other system, is absolutely inconceivable, as previously shown, and so must be false.

For example, in the Planets of Sirius there *possibly* is no atmosphere, and that their inhabitants may live without breathing at all may possibly be a NATURAL fact. But there they never can make a Triangle, the three angles of which are not exactly equal to Two Right Angles, because this is UNIVERSAL fact.

In order to enforce this truth more strongly, we may seem to use unwarrantable words. Yet, in the interest of Truth—His Truth!—with all reverence be it written that, while the Supreme Being can by a fiat of Omnipotence alter or cancel all or any

NATURAL truth or law, he can do no evil, nor alter or abrogate any UNIVERSAL truth. For this would simply be to contradict himself—the one thing inconceivable.

These several subjects have, more or less directly, engaged the study of almost every open-minded thinker for the past twenty-four centuries at least; and now, to many people, we fear the results appear a very learned puzzle. Had a definite solution been possible, would it not ere now have appeared? The best minds, even of the present day, have been occupied in the search. Nor have their labours been in vain, for other important discoveries have more or less directly resulted in relation to the Properties of Matter, and profound ideas been evolved in the Science of Mind.

It is satisfactory to know that several facts have been established generally; an important one being that it is as much beyond the power of Mind, or human agency, to destroy even a single particle of Matter as it is to create one; and the same is true of the forces of the material world. [We will further consider this point in a future Lecture.] This Earth and its Animal Life, and all its forces and properties of Matter, *belong to Man*, and seem altogether subject to the human Mind, for the purposes of his investigations, transmutations, ameliorations, and improvements. Such investigations, and the discoveries of science, afford him his highest intellectual pleasures, but, whether for his education, enjoyment, or even abuse, Matter is his servant and slave, although always under limitation of Nature's Laws. But no such powers of interference with the

Earth's proper motions in Space, nor with any Matter beyond our atmosphere, are inherent in Man.

One of the admitted properties or conditions of the Planets, and Matter generally, as already referred to, is called Inertia—that is, the Force which all Matter in motion possesses of permanently continuing that motion in a straight line or (as a solid body revolving around its axis) *in the same plane*, unless some other exterior force deflect or destroy it. This latter motion is best shown by that scientific toy the Gyroscope, and also by the common Bicycle. The former, or straight-line motion, however, cannot be found in nature, in consequence of the divergence caused by Gravitation. From this it clearly appears that in all our Solar System, and indeed in the visible Universe, there is no such thing or condition as REST. Every Planet, great and small, is, with at least a threefold motion, rushing through Space at prodigious velocities. This is a necessary fact, for if not so, they would all fall into the Sun. Francis Bacon (1561 A.D.) alludes to this when he speaks of "the heavenly bodies . . . which have much veneration, but no Rest." * Stagnation represents Darkness, and motion Light. Of all the heavenly bodies, the Sun appears the greatest to human vision. The Centre of Time and the fountain of light: he seems to reign as King, supreme over all planetary affairs :—

"This earth and all the worlds around that sweep,
Hold up Thy myriad altars!"

* Essays, xix.

So also in Nature:—

> "Oh, Morn! from countless cups of gold,
> Thou liftest reverently on high,
> More incense fine, than earth can hold,
> To fill the sky."

Professor Tyndall tells us that even the Ether of Space is in motion. Not one single orb, nor one living thing thereon, is at rest, or ever can be at rest, under the present Laws of Nature, so long a more than one orb exists. Nor even with one unless its momentum (*i.e.*, Inertia) were destroyed by some other opposing force exactly equal and exactly opposite; and this evidently would result in the union of the two—at rest *theoretically*, it may possibly be, but of course transcendently hot.

When we consider that every planet is not only attracted by its Sun, but also attracts the Sun in return, it follows that the planet will not revolve around the *exact* centre of the Sun, because *theoretically*—with a motion so slow as to be imperceptible—the Sun will have a revolving tendency round the planet; the true centre of the two being a point in the Sun infinitesimally removed from its geometrical centre, in the direction of the planet.

If there were no other attraction but such as is mutual between any two such bodies, the position of their mutual Gravitation Centre could be mathematically determined; but, in such a multitude of mutual attractions, as exist in our System, the problem becomes hopelessly intervolved. In addition to this complication, the overpowering influence of the Sun's attraction, consequent on its vast size,

and its power of determining the orbits of all the planets, renders such calculations futile.*

But still there must be a point in the Sun which is the *Centre of all these theoretical Centres.* It may not always be exactly the centre of the Sun, but is the *Gravitation Centre of the Solar System.* Even this Centre-point is not at rest, but is ever revolving round what is commonly called the great centre of the visible Universe. It has been suggested that this Centre may be found to exist in the Milky-way, but no evidence of this is apparent. Here, along with the Centres of other systems of worlds, it continually revolves. It is vain to assume that this so-called "Centre of the Universe" is at Rest. We simply must confess our ignorance. But reason assures us that Matter is not eternal, belonging as it does to the NATURAL sphere, and that there must still be a *final* Centre where only REST is, and, if we may guess at truth, where possibly the Laws of Nature disappear. This may seem a strange supposition, but it is not new, nor is it impossible; and certainly it is not *illogical*, if the Arbitrary Fiat of the Supreme original Creator must remain uncontradicted and Supreme. It has been pointed out that Solomon suggests such an idea in his prayer. "Will God in very deed dwell with men on the earth? Behold heaven, and *the Heaven of heavens*, cannot contain thee." St. Augustine describes the nature of God as a circle whose centre is everywhere and its circumference nowhere.

The consideration of this subject leads our

* We find this view is confirmed by Sir Robert Ball in "Cause of the Ice Age" (Kegan Paul, London, 1891).

thoughts upwards, and into depths too profound for our limited capacity to embrace, but the exercise is one of never-ending interest, and we can at least see and feel its sublimity.

But to return to our main Argument. *The Third Kind of Evidence is that of the Natural Sciences.* To this there is not the same objection as was made to the first and second kinds, but another almost equally unsatisfactory, namely, that the Truths of these Sciences are NATURAL Truths, inasmuch as they are Empirical and *Arbitrary*, and subject to the Laws of Nature. They are indeed true, but not *necessary* and UNIVERSAL Truths.

Of the Fourth Kind of Evidence by which Truth impresses itself upon the Mind, pure Geometrical or UNIVERSAL *Science is one section*, the Truths of which are both necessarily and UNIVERSALLY True, as already pointed out, and the Mind cannot conceive any exception to them in Space or in Time—finite or infinite. Accordingly, Necessity and *Universality* are sure characteristics of all UNIVERSAL or spiritual Truths, and they also belong inseparably to each other.*

The line of demarkation between the NATURAL and the UNIVERSAL Truths is, we repeat, definite and clear. *Whatever Truth or Science is Empirical, i.e., the result of experience, or subject to the Laws of Nature, is a* NATURAL *Truth; whatever is neither related to nor dependent on such Natural Laws is a* UNIVERSAL *Truth.* No NATURAL Truths are free from possible change or extinction, as already stated.

* Kant's "Critick of Pure Reason" (Pickering).

Even Time itself, being a Natural Truth, is not possessed of continuity; and there is no perfect uniformity in its measurement, either for the day or for the year, all our Time-measurers, whether astronomical, natural, or artificial, being, like all other Natural truths, only approximately correct at the best.

We repeat that NATURAL Truths are *Arbitrary*, and consequently ever subject to possible change or extinction. UNIVERSAL Truths are necessarily True and Eternal. A yet more concise definition of Two Spheres of Truth may be thus expressed:

Natural Truths are without Continuity,
While Universal Truths are Immortal.

But both kinds of Truth are alike True, although one of them is limited by Time. Given two parallel straight lines, one short and the other of infinite length, there may be perfect coincidence of direction. The difference between them lies in the fact that one of them is necessarily continuous: the other is not so, being subject to Nature's Laws.

Abstract Arithmetic, Algebra, and the higher Mathematics, so far as based upon Mental Geometry and Calculus, are UNIVERSAL Truths. The great Laws of Nature are, so far as we see, invariable and unbending in the NATURAL sphere, and so very much so that we habitually forget they are Arbitrary only, and we think and speak of them as if absolutely stable and ever-enduring. This feeling is, we think, strengthened by the Evolution theory, which these Laws certainly support, yet as certainly *limit* in its operations; but we have seen that, being Arbitrary, they must ever be subject to possible

change, or even extinction, however improbable this may appear.

Our readers will here observe that *Evolution itself, being Material and Arbitrary, is a Natural fact, and so without Continuity.*

The idea that the Laws of Nature are absolute rests very much on the facts of observation, which appear to prove their invariability. But this is not the case. UNIVERSAL Facts are invariable, but the consideration of THE TWO SPHERES OF TRUTH proves that NATURAL Facts can only be invariable within arbitrary limits. Exceptions are not very evident to us, however. One of the "Laws of Nature" is that Heat produces expansion of Matter, and Cold contraction; but this Law does not very evidently possess Continuity. We shall hereafter see that Heat must have a limit of increase; and it is a matter of observation that Cold does not indefinitely produce contraction. In the case of Water the Law appears to be limited or at least *counteracted*, for in the process of cooling, Water ceases to contract at about 7° short of the freezing-point, and then *begins to expand* until it freezes (at 32° Fah.). Ice is lighter than Water, and swims in it, having expanded one-ninth of its bulk; thus showing that this particular Law, like all the other Laws of Nature, is not absolute, but empirical, and without Continuity, its operation being checked or limited by Nature's "Law of Counteraction."

The curious scientific fact of apparent expansion by cold seems to be accounted for by Professor Tyndall's explanation of the Law of Crystallization. When John Milton spoke of a certain place

"Where cold performs the *effect* of fire,"

perhaps he little imagined that the words set forth a fact of everyday occurrence, even in our own latitudes, though, to be sure, not in the precise sense of his argument.

We will try to give Professor Tyndall's meaning in a few words. When water is reduced to a temperature of 39° Fah., its molecules begin to prepare themselves for approaching solidarity. The force of Contraction by cold may not really cease to exist, but a new force then appears to *counteract and overcome it*, namely, the force or law of Crystallization. This is, in other terms, a force of *Magnetic Polarity*, by which the molecules of the water are set in motion, and ice crystals are produced. This rearrangement as ice, may require more space than the cooling water had occupied, and the ice consequently have a greater bulk with less specific gravity. Thus cold appears to expand instead of contracting the bulk, the weight remaining unaltered. But since the Law of Crystallization seems to counteract the Law of Contraction by Cold, it may be asked, is *it* possessed of Continuity? The answer must be no, for it is a Natural Force, and is itself counteracted by some other force, or otherwise finally controlled by the Laws of Nature generally. This Law of Counteraction we propose to consider in a future Lecture.

"Of the fact of the exquisite beauty of crystalline formations, there can be no doubt; Chemists tell us that it shames all the art of the Architect or the Sculptor."* "Here," says Professor Tyndall, "is

* "Natural Theology and Modern Thought," by J. Houghton Kennedy, B.D. (Hodder and Stoughton, 1891).

a solution of common sulphate of soda. . . . Looking into it mentally, we see the molecules of that liquid, like disciplined squadrons under a governing eye, arranging themselves into battalions, gathering round distinct centres, and forming themselves into solid masses, which after a time assume the visible shape of the crystal I now hold in my hand." *

The Laws and Forces of Nature, as already stated, appear to be so uniformly invariable that they are generally regarded as absolute. But unless matter itself is eternal, material truths cannot be so: they must, in fact, be bounded by time. If the present world were to us the "be-all and the end-all" † of existence, the Truths of the NATURAL Sphere would be equally important with those of the UNIVERSAL. But the pre-eminent importance of Universal Truth appears distinctly from the following considerations.

First: NATURAL Truths are bounded by Time. Geologists and Scientists generally are agreed that this globe had a beginning some millions of years ago, and is destined to have an end. A learned writer on the "Conservation of Energy," speaking of Gravitation and its results in the diffusion of Heat, says: "It appears to be the last scene of the Universe—chaos and darkness, as in the beginning." Extend its period as we may in imagination, how little it is when compared with Eternity, throughout which Universal Spiritual Truths have existed, and all which will ever continue to exist.

A second consideration is more striking. Mankind's tenure of this world has evidently been very

* "Fragments of Science," vol. i. pp. 357, 358.

† "Macbeth," act i. sc. 7.

short, and is without perpetuity; for, being an arbitrary tenancy, it is always liable to possible change or extinction. Leibnitz writes that "the Earth and the Sun themselves have no *necessary* existence—perhaps a time will arrive when its whole systems will have no longer a place in Creation." *

Still more calculated to arrest attention is a third consideration. We are—each individual man is—living under the operation of Arbitrary, that is, NATURAL Truth Laws for, say, three-score and ten short years, during one-half of which we sleep, and the other half we too often procrastinate away, or otherwise consume in the pursuit of shadows, or at least in the daily struggles of life; whilst not one-tenth of the race ever attain to that age. Of the thousands who daily cross the river Styx, is there one who departs satisfied that he has finally completed his plans, and reached up to the ideal of his life? No man, says Principal Shairp, "ever felt more painfully than S. T. Coleridge did—

> 'The petty Done, the Undone vast.'"

And so also James Smetham, the painter—

> "For dying ever, ever born,
> Much done and nought accomplished." †

Speaking of Man's Works, Carlyle thus wrote: "Man, Symbol of Eternity imprisoned into Time! It is not thy works, which are all mortal, infinitely

* Hamilton's "Lectures on Metaphysics," i. 855 (Blackwood, 1859).
† "Letters and Memoir," p. 344 (Macmillan and Co., 1891).

little, and the greatest no greater than the least, but only the Spirit thou workest in, that can have worth or continuance." Thus he distinguishes between the Works—*Natural* Sphere and the Spirit (Mind) of the *Universal* Sphere.

Should it be true that there is to be a Life beyond, throughout the endless future of Eternity, how much more insignificant must this "little life" appear in contemplating such a prospect! John Ruskin only utters aloud the cry of all thinking men; "How miserably short is human life!" Bishop Hall (b. 1574) said: "Death borders upon our birth, and our cradle stands in the grave." Even Dr. Darwin said: "How fleeting are the wishes and efforts of Man! how short his time!"* And so also the Persian Poet, by Mr. Lang's translation:—

> "When you and I behind the veil are passed,
> O but the long, long while the world shall last,
> *Which of our coming and departure heeds—*
> As the Seven Seas should heed a pebble's cast"!

At best, Life is barely enough for Man to gather in his materials for contemplation, and earnestly to *begin* the search after the grandest and noblest Truths of his existence. The great argument is sometimes suddenly, often prematurely, *always defectively*, closed. "As soon as we have learned to live we must die." In view of this fact it is remarkable that some eminent thinkers still doubt the Future Life. Should not this one consideration —the *utter incompleteness* of the present life—appear conclusive and convincing evidence of Immortality—proof quite as satisfactory as a whole

* "Life of Charles Darwin," by G. T. Bettany, p. 85 (Walter Scott).

library of "Evidences of the Immortality of the Soul" could supply?

This thought has been strongly enforced by thinkers in all ages. Thus Prior Henry of Huntingdon (1084): "O death, how soon you rush upon us! how sudden is your grasp! . . . May therefore the physician who comes after death give . . . a life of health continual!" *

Our great poet has said that "Our little life is rounded with a sleep" †; and Wordsworth, that "Our birth is but a sleep and a forgetting"; ‡ and again—

> "Our noisy years seem moments in the being
> Of the eternal Silence, truths that wake
> To perish never." §

And Homer wrote:—

> "Like leaves on trees the race of man is found:
> Now green in youth, now withering on the ground."

"Time!" exclaimed Agassiz, "my only trouble is that I have not enough time for my work. . . . For my part I wish the day would never come to an end." ||

"To-day," says the Eastern proverb, "we visit the tomb of our friends: to-morrow other friends will visit ours." President Adams, at the close of an active and useful life, said with a sigh—"What Shadows we are, and what Shadows we pursue!"

* "English Writers," by Henry Morley, vol. iii. p. 101 (Cassell, 1888).
† "The Tempest," act i.
‡ "Intimations of Immortality."
§ Ibid.
|| "Eminent Men," by Whipple, p. 99 (Boston, 1886).

David Hume more than once quoted a saying of Rousseau's, that "One half of a man's life is too little to write a book, and the other half to correct it." Hume himself died almost in the act of making "one more" correction of his works. *

Sir Walter Raleigh is said to have written on the night before his execution (1618):—

> "Even such is Time that takes on trust
> Our youth, our joys, our all we have,
> And pays us but with age and *dust*."

If there be no hereafter Life, *how utterly inadequate, unsatisfactory, and disappointing* such a finish to our glowing aspirations, and to all our anticipations of coming happiness in unlimited development! The late Laureate speaking from a higher platform wrote:—

> "While thou, dear spirit, happy star,
> O'erlook'd the tumult from afar,
> And smilest, knowing all is well." †

There is quite a consensus of opinion amongst the Poets as to Immortality. A great Poet is compounded of the Philosopher and the Seer, and although no *opinions* can decide the question, no others can be so assuring to man on this matter.

Marcus Aurelius wrote, "Soon, very soon, thou wilt be ashes or a skeleton, and either a name or not even a name; but name is sound and echo. And the things which are much valued in life are empty and rotten and trifling." ‡

* "Letters of David Hume" (Clarendon Press, 1888).
† In Memoriam, cxxvii.
‡ Long's Translation.

It is quite unnecessary to multiply aspirations after a higher life, for we must now consider the truth of Immortality as not seriously questioned. "Yes," said Agassiz, "the study of Nature is direct intercourse with the highest Mind. A laboratory of natural history is a *Sanctuary*." *

Shakespere calls Life "this bank and shoal of Time." † But what is Time itself but the mere Beach of that illimitable Sea—the Ocean of Eternity! "The thought of eternity," says Malesherbes, "consoles us for the shortness of time."

No son can inherit and enter into possession of his father's Mind and intellectual stores. This is impossible, under the Development or any other theory. A man's material and mechanical inventions may be inherited, less or more, but the son must himself begin his own *Universal* or spiritual Truth studies. If it were not for this imminent, and always recurring break in the continuity of human thought, how rapid might not the advancement of Psychology become? Thus Homer—

> "Another race the following spring supplies,
> They fall successive and successive rise." ‡

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* "Leaders in Science," p. 198, by C. F. Holder, LL.D., 1898.

† "Macbeth," act i. sc. 7.

‡ "The Iliad," Pope's Translation, book vi.

FIFTH LECTURE.

DEFINITION OF LAW—PROPERTIES OF MATTER—INDEPENDENCE — EVOLUTION — COUNTERACTION — FREE WILL — MECHANISM—OMNIPOTENT FIATS.

AS we attempt to travel over so vast a field, somewhat indefinitely, our arguments must be broken up into numerous separate detachments, and therefore before proceeding with our main proposition, it may be well to have some explanation of terms. And first as to "the Laws of Nature." We have been so accustomed to consider these words as half sacred, and as an end of all controversy—a kind of Scientists' god—that to question their absolute potency seemed akin to sacrilege. The word *Law* here means simply the *statement* of a fact which *experience* teaches us is always fact. *But the law is not the cause of the fact.* Thus one of Nature's laws is, that life cannot be sustained without food and air, and that deprivation of these is death. The *law* does not cause this death; it is the *fact* of the deprivation of food and air alone that does so—experience having proved this always to be a fact. It is merely called a law to indicate its invariability *empirically.* There is no potency whatever in the law itself, *but in the fact only; and so also with all the Laws of Nature.*

"The Properties of Matter" and "The Evolution Theory," terms which have already been used in our illustrations, may be considered in close connection with this term "The Laws of Nature." *All three are evidently but expressions of three different aspects of the same subject.* "Laws of Nature" only codify, as it were, the "Properties of Matter" as understood by the Mind; and "Evolution" signifies the consequent and natural visible results of their operation. All these belong to the sphere of NATURAL Truth.

There seems no more reason for the objections sometimes made on religious grounds to this Evolution Theory than there is for objections to the Laws of Nature themselves, of which that Theory is indeed supplementary. Nor, on the other hand, is there any foundation for the dreams of some of its extreme advocates as to its *indefinite* progress to imagined perfection; for being *a Natural* fact it is without Continuity. Evolution is, in fact, strictly "cabined, cribbed, confined, bound in" * by the barriers of these apparently inflexible "Laws of Nature," and in every direction checked at the frontiers of their domains. Thus Natural Evolution being limited to the *Natural* sphere, its truths are NATURAL Truths only, and consequently do not necessarily apply to the world of Mind.

The distinctive character of NATURAL or arbitrary Truths we have already shown, but some consideration of the word *Arbitrary* may be desirable. The Truths of the Natural Sciences (including the Laws of Nature, the Properties of Matter, and indeed

* "Macbeth," act iii. sc. i.

every empirical fact) are true, yet not UNIVERSAL Truths, but Laws definitely *enacted* and imposed by Arbitrary Fiat of the "Supreme Being." There is really no *necessary* reason in the nature of things for their continuance indefinitely; and so, being arbitrary, they may be said to exist only by the will of the same Supreme Power. Consequently the same Arbitrary Fiat evidently *could* alter, enlarge, or abrogate them, or any portion of them, at any time. The probability of such change during our present planetary system is evidently inconceivably small, but for the sake of argument we prefer using an extreme supposition, as least likely to mislead in a logical position. This word Arbitrary is not used in its despotic or oppressive sense, but only as indicating acts of a Power absolutely Supreme above all review, admitting of no rival or control, but conceivable as wise and just and benignant in the highest sense to Man. At least this is quite as reasonable and probable as to conceive that He is the reverse—cruel and malignant, as some one suggested.

It has sometimes been gratuitously assumed that no alteration or change of Nature's Laws *could* possibly be made without throwing the entire Solar System into confusion. But this is evidently a very unphilosophical and illogical idea, when we consider that such action could only be the arbitrary Fiat of this *same Supreme Power who originally enacted these arbitrary laws.* Almost all philosophers admit the existence of this Great Original Creator, and such an assumption would be simply a contradiction of the truth of His *absolute Supremacy.*

For the sake of our Argument we have used the words Change and Abrogation only as the *prerogative* of the Creator, and to *show that he never can be supposed as unwillingly* SUBJECT *to his own Laws.* But, strictly speaking, He, in Nature never, so far as open to human observation, alters or changes its Types or Laws. In the Animal world, Life may have at first existed in forms extremely simple, and been continued the same in higher species, or more complex creatures, but always upon the original TYPE—added to, perhaps, *but never as a Type improved.* For Nature goes not back to amend any of its works, as a clever workman may do to change a faulty design, as he grows wiser by experience. Nature began with a *perfect Type*, and built upon that and that only. We speak here of the Physical sphere; but it appears to be the type, or otherwise the impress, of the Ethical and Spiritual spheres; and probably this same Law of a perfect first creation applies to these also. We cannot tell, but, as Shakespere puts it, "THERE'S HUSBANDRY IN HEAVEN," * and not waste of power. Again:—

> "Spirits are not finely touched
> But to fine issues: *nor Nature never lends*
> *The smallest scruple of her excellence,*
> *But, like a thrifty goddess*, she determines
> Herself the glory of a creditor—
> Both thanks and use." †

Could we imagine a man possessed of reason, deliberately destroying some beautiful and rare work of Nature, or a valuable piece of Art in his possession, merely to show his power or right to do so, and thus

* "Macbeth," act ii. sc. 1.
† "Measure for Measure," act i. sc. 1.

to create loss, disorder, and terror to his retainers? Would not such an act be in itself proof of insanity? But these words never could apply to any imagined Fiat of the *Supreme*, because, as already stated, such Fiat would of course *itself* intercept or prevent any possibility of confusion or disorder.

The economy of nature is thus finely expressed by Laplace: "The simplicity of nature should not always be measured by that of our conceptions. Infinitely varied in her effects, nature is only simple in her causes, and her economy consists in producing a great number of phenomena, often very complicated, by means of a small number of general laws." *

But although we cannot conceive of any *Improvement* on Nature's types and laws, we can conceive that the Creator, if He choose, can make new laws, and that He can abrogate all or any physical law or thing or creature, nay, even Time itself; for these are not *necessarily Eternal*. He may not use such powers, but their possession is absolutely required in a Self-existent and *Supreme* Creator. Spinoza wrote that "The omnipotence of God has been from eternity actual, and will to eternity remain in the same actuality. . . . From God's supreme power or infinite nature an infinite number of things in infinite ways—that is, all things—have necessarily flowed forth." †

But the Mind *cannot conceive the possibility* of an enforced alteration of any UNIVERSAL or Spiritual Truth, because such alteration would directly *con-*

* "The System of the World," bk. i. ch. xii.

† "Spinoza," by Principal Caird, p. 300 (Blackwood, 1888).

tradict Reason (the Mind). The question of *difficulty*, of course, never can enter into competition with the idea of Absolute Power. Its exercise never can be conceived of by the sane Mind as acting *contrary* to Human Reason, however much beyond and above it, because human reason is a creation, or in some sense an emanation, of the Divine. "There is a difference," as Bentley says, "between what is contrary to Reason and what is superior to it and out of its reach"—and a most important difference it is.

Many of the Natural Phenomena or Laws are not necessarily the subjects of observation to us. But, so far as open to the observation of our historic age —which, however, is a *very short* period even of Time—they are not *seen* to have been interfered with, unless we admit a case of miracle, and any oral or written evidence to the contrary requires clear confirmation of its authenticity.

In writing of the Laws of Nature, and also of the possible new Fiat of Omnipotence, we have hitherto endeavoured to treat them in the most logical and unqualified terms, just because any "Truth," if true, must stand upright upon its *own* foundation, free of any adminicle, qualification, or apparent exception. A lofty tower, surrounded by other buildings, or buttressed for ornament, may be perpendicular, but if it were standing quite apart, the beholder's eye would be much more easily assured that it really was so.

Among the many puzzling questions which meet the seeker after Truth, one of the most controverted is that of Free-Will and Necessity. In the hands of the Schoolmen these terms have been used not alto-

gether in their ordinary English meaning, but in a subtle and highly critical sense, more profound than obvious. Man can, or rather must, know whether his Mind is free or a slave. The most invincible disbelievers in the Freedom of Will are perhaps the Materialists, whose God seems to be "*Nature.*" Nature is supposed to work out her purposes by a Mechanism incapable of variation or control. Monism is similarly impotent of change. "To Monism the world is a Mechanism, and in Mechanism the freedom of the Will can have no place."

"The German Physiological School prides itself on its jealous exclusion of any explanation of phenomena which is not purely mechanical." * "If we once admit," said Professor Clifford, "that physical causes are not continuous, but that there is some break, then we leave the way open for the doctrine of a Destiny or a Providence outside of us"; † and we may add open for the doctrine of Man's Free-Will.

Beatrice, in "Paradise," thus addresses Dante:—

> "Most prized
> Was liberty of Will, the boon wherewith
> All intellectual creatures, *and them sole*,
> He hath endow'd." ‡

Professor Huxley thus writes: "The fact is that every one of the speculative difficulties which beset Kant's three problems, the existence of a Deity, the freedom of the Will, and Immortality, existed ages

* "Natural Theology and Modern Thought," by J. H. Kennedy, 1891.

† "Essay on Mind and Body," *Fortnightly Review*, December, 1876, p. 180.

‡ "Paradise," canto v. (Cary's Translation).

before anything that can be called physical science, and would continue to exist if modern physical science were swept away." Again, "With respect to the old riddle of the freedom of the Will. In the only sense in which the word freedom is intelligible to me—that is to say, the absence of any restraint upon doing what one likes within certain limits—physical science certainly gives no more ground for doubting it than the common sense of mankind does." "Physical science is as little Atheistic as it is Materialistic." * Again, he says, "To come at last to the really important part of this discussion, if the belief in a God is essential to morality, physical science offers no obstacle thereto."

Vauvenargues wrote: "Whether it is reason or passion that moves us, *it is we who determine ourselves;* it would be madness to distinguish one's thoughts and sentiments from one's self. . . . No will in men, which does not owe its direction to their temperaments, *their reasoning*, and their actual feelings." Joseph de Maistre (b. 1754), another French writer of eminence, well said that "God created men under conditions which left them free to choose between good and evil. All the physical evil that exists in the world is a penalty for the moral evil that has resulted from the *abuse* by men of this freedom of choice."

Amongst many instances of honest independence of Mind, perhaps none is better than that of Bernard Pallissy, the famous potter (b. 1510). An original genius and discoverer in Art and Science, he was

* Essays upon Some Controversial Subjects, pp. 229, 231, 233 (Macmillan & Co., 1892).

also a true Philosopher, the first in France to insist upon positive facts and demonstrations, instead of the fanciful interpretations of previous teachers: a man of humble life, but an illustrious example of perseverance under extraordinary difficulties, and the maintenance of his opinion in face of prison, priest, and king.

Equally strong was the spirit of independence displayed by Spinoza (1632), the son of a rich Portuguese Jewish family. Expelled by all his relations and the Synagogue for his firmness in maintaining his new opinions in Philosophy, he lived a life of suffering and actual privation. He died at the age of 44 years, a martyr to science and to an over-sensitive feeling of independence. Spinoza was no infidel, but he has been sometimes misunderstood. His mind was strongly reverential and conscientious, whilst he was almost to a fault logically critical. He was not a scientist, but one of the most eminent philosophers, and his aim seems to have been to reach to the very foundation of Mind. His philosophy was profound, albeit singularly abstruse and unsatisfactory; but the character of the man for honest independence remains almost without a parallel, and, like Pallissy's, his memory is enrolled in the history of the martyrs of Science. But men like these were ennobled by their lives and in their deaths. Such men have been rare, yet might have been less so but for lack of proper self-respect and self-restraint, as in the lamentable case of Poe and Burns (in his later years) and one or two other men of eminent genius, who drifted amongst the rocks and shipwrecked their lives.

Richard Lovelace (1658), another man of independent mind, could write in his prison :—

> "Stone walls do not a prison make,
> Nor iron bars a cage."

The Greek philosopher Epictetus, himself a manumitted slave, said, "He is free whose body is bound, but whose soul is free"; and again, "That man is free who masters his own self." No human chains can bind the free spirit of man. And a great modern philosopher has said, "Freedom, Immortality—these two in all their degrees I honour: all else is chaff and dust, which let the wind blow whither it listeth." * So wrote Thomas Carlyle, eminently great as a philosopher, whom John Ruskin describes as "our one quite-clear-sighted teacher!"

This argument of Free Will *versus* Necessity, which has for centuries been carried on by different sections of the Theologians, has been without definite result. It will continue to be so, because it is a complex argument, and even yet remains vague, for lack of a definition of its two phrases which, long regarded as opposite, are too often treated as incompatible, if not incommensurable. If a man, in the exercise of what he calls his Free-Will, defies the laws of his country by stealing my watch, he will of necessity go to gaol; but his Will will still remain free. If in the exercise of his Free-Will he now strangles his gaoler, he will of necessity be hanged. Or should a man defy the inexorable Laws of Nature, and leap into the sea, he will, unless a swimmer, of

* "Sartor Resartus," book iii.

necessity be drowned. His Free-Will would throughout have been maintained. Beyond the grave we have no right to say that even then his Free-Will (a faculty of Mind) will cease to exist. All these actions of his have been in the *Natural* Sphere, but still his Mind (*i.e.*, his Free-Will) belongs to the *Universal.* Need we proceed? To argue out the question of Necessity is hopeless. Hume and Kant tried, but failed.

Nothing, perhaps, appears more complete than the Duke of Argyll's argument on the definitions of Law in his "Reign of Law"; yet, on a first reading of the second chapter of that work, one is perhaps too much impressed with the forcible way in which he announces that there is a sense in which the "Reign of Law" is the reign under which we live. "The whole world around us, and the whole world within us, is *ruled* by Law—our very Spirits are subject to it—those Spirits which yet seem so Spiritual, so subtle, so free." Now in the light of our definition of "Law" we submit there is no clear sense in which this is altogether true. Of course the Laws of Nature being of the Natural Sphere cannot partake of Mind attributes.

But the Duke subsequently clearly corrects any erroneous impression which these sentences and others may have produced. "It is a great mistake to suppose that the progress of modern investigation is in a direction tending to Materialism. This may be, and always has been, the tendency of individual minds. . . . It is not now of wood or stone that men make their Idols, but of their own abstract conceptions. Before these—borrowing for them the attributes of

Personality—they bow down and worship. . . . Men who may be trusted thoroughly on the facts of their own Science, cannot be trusted for a moment on the place which these facts assume in the general system of Truth." Although this may be true in general, there have been, and are, some eminent exceptions. "Philosophy must include Science; but Science does not always include Philosophy."

That the Laws of Nature are liable to change by a possible (we do not say probable) new Fiat of Omnipotence, some would not admit. But the Duke propounds a beautiful theory of "The Variable combinations of invariable Force," which gives a somewhat similar, or rather an equivalent, result. His words are: "Every Law of Nature is liable to counteraction, and the rule is that laws are habitually made to counteract each other in precisely the manner and degree which some definite result requires."* He says, "There are no phenomena visible to Man of which it is true to say that they are governed by an invariable Force." So that if Omnipotence may not choose to cancel or limit any of the Laws of Nature by a Fiat enacting a new Law in lieu thereof, He may accomplish the same or an equivalent result by calling into play various other different existing Laws, such as may be unitedly necessary to accomplish the desired change. Our one object in treating of this subject at all is the wish to keep clearly before us throughout our argument, the *Absolute* nature of the power of a Supreme First Cause. His choice of action can never be limited by any of his own laws; for such limitation would involve self-contra-

* "Reign of Law," ch. ii. p. 100, 5th edit. (Strahan and Co., 1868).

diction, and so the First Cause would fail to be *supreme.*

Our idea *clearly* exhibits the fact that the Laws of Nature are not *Eternal*, a truth which, we think, his theory unintentionally tends to obscure. Indeed, to some minds, it will suggest an awkward resemblance to the Law of the Medes and Persians, which an absolute Xerxes could decree, but once decreed, even he could not repeal. That the Omnipotent works by Laws in the Natural World seems obvious, as also is the doctrine of Evolution *within fixed limits.* But to maintain, as some seem to do, that these Laws are both Absolute, suggests that their Author is merely a gigantic Frankenstein, powerful to make Laws, but, the Laws once made, helpless to control or alter them.

It has been suggested that any alteration whatever in the wonted Laws of Nature would infer indecision, or otherwise a want of wise forethought on the part of the Original Creator. This is inconceivable, because it would involve the idea that these laws were inevitably fixed and immovable even by Himself, so that He, as well as His creatures, would be bound up in an iron cage of destiny, and Man's actions would be without either merit or demerit, and he would necessarily be an irresponsible automaton. Besides, it is not conceivable by us that the Infinite Creator does not leave himself free to act, when and how he may think proper in all times, past, present, and future.* May it not be that such supposed alterations are only parts of his *original* idea, but not

* "Problems of the Future," by S. Laing, p. 225 (Chapman and Hall, 1889).

required in earlier operation? Consequent on his omniscience, can it be said that every possible contingency may be provided for beforehand, *even the possible results of Man's free will?* Here we are bordering upon the unknowable. This is a totally different idea from the famous old suggestion that the Creator wound up this Material Universe like a clock, to go on eternally, every great or small event alike predestined to happen in a way absolutely fixed from Creation, needing and receiving no supervision. That idea is, of course, inconsistent with Man's free will, and even seems an attempt to limit that of the Creator.

We should gladly have avoided this question altogether; but it is one which appears to have a special interest for most seekers after Truth. It has always been a bugbear in their path; and it received considerable prominence in the writings of John Stuart Mill. It borders on the Unknowable, and therefore perhaps the best mode of discussing it is to examine the arguments of Mr. Mill's school on the subject, in order to determine whether they are of a logical character. It may be premised that the possible new Arbitrary Fiat, of which we have already spoken, does not imply, as some theologians erroneously put it, that such a Fiat must needs contradict or supersede existing arbitrary Laws of Nature—for the Supreme Will would thus oppose itself, which is absurd. We should simply have two Fiats of *the same* Supreme and beneficent Being; and as He works by the operation of Laws, the new Fiat cannot be imagined save as interpreted by Arbitrary Laws of Nature, as simple, beneficent, and just as we have found his Laws to be.

It is evident that these considerations were left out of account, even by so eminent a thinker as Mill. Of this the following is a remarkable instance, and can only be accounted for by his not seeing the *fundamental* difference between the "*Two Spheres of Truth.*" Mr. Mill, in criticising Sir W. Hamilton's views of the Conceivable, writes, "We cannot represent to ourselves a round Square, or that two and two make five." "These things," he adds, "are literally inconceivable to us, our Minds and our experience being what they are. . . . Whether they would be inconceivable, if our Minds were the same, but our *experience* different, *is open to discussion.*" * That the reverse of the most familiar principles of Arithmetic and Geometry might have been made conceivable even to our present mental faculties, if these faculties had co-existed with a totally different condition of external Nature, is, Mill says, ingeniously shown in "Essays by a Barrister," who writes as follows:—

"Consider this case. There is a world in which whenever two pairs of things are either placed in proximity, or are contemplated together, a fifth thing is immediately brought within the contemplation of the Mind in putting two and two together." [He does not say how brought, or by whom.] "This is surely not inconceivable, . . . nor can it be beyond the power of Omnipotence—yet in such a world two and two would make five"! As for this, it may be remarked at once that even Omnipotence cannot make an absolute untruth true!

The idea in the "Learned Barrister's" mind

* "Hamilton's Philosophy," by J. S. Mill, p. 69 (Longmans, 1865).

is obvious enough, and his NEW *order of Nature* is conceivable, certainly, with all his imaginary conditions. These are, in plain language, that in every case where two pairs of things are placed in proximity, or contemplated together, some unknown Power, at the *instant* of contemplation, creates a fifth thing amongst the others, and that the Mind, in putting the two and two together, sees them to be *five*. "This," he adds, "is surely not inconceivable." In such a new world the 2 pairs of things plus 1 would undoubtedly be 5 real, not merely apparent, things. So far he is quite correct; but do we not see that neither a new World, nor any new order of Nature, is required? In our present world, and with our present experience, 2+2 with 1 *always* added, during or at the moment of consideration, and whether obviously, or by an unseen hand, would *here* also make 5. The only difference is that, in the new world, men would accept the fact at once, while at present we should be astonished *at first; in both cases alike the fact would remain*, that 5 things were really before us, beyond all question. This is a pure *Arithmetical* (Geometrical) and *consequently necessary* truth, that 2+2+1 make 5. It is not a mere *Arbitrary* or Empirical, but a UNIVERSAL and eternal Truth, both in this and in all possible worlds.

It may be said that the Barrister does not affirm that the fifth thing was *created*, nor even that it exists, but that "a fifth thing is immediately brought within the contemplation of the Mind." This seems to infer a creation; or, if not, an *illusory* thing cheats the Senses, and defrauds the Mind with an

untruth. Does not this resemble a mere juggler's trick? Is it not the very acme of unreason?

It is further suggested, that it would also be possible to put a case of a World in which two straight lines should be universally supposed to include a space. Here the questioner overlooks the fact that he is endeavouring to overturn another *necessary*, because a *Geometrical* and therefore UNIVERSAL and eternal truth, which demonstrates that three *straight* lines are absolutely necessary to enclose a space. With equal reasonableness it might be affirmed that we could conceive of a world in which we could make to ourselves a Round Square, or even represent to ourselves that the Sun could *be* and *not be*, at one and the same time. Such assumptions as these are absurd, and mere self-contradictions. To call in Omnipotence, as the Learned Barrister's idea suggests, arbitrarily to make a Necessary and UNIVERSAL Truth untrue, is clearly a direct contradiction to Reason, and is therefore *not conceivable.* On the other hand, to say that Omnipotence could alter a NATURAL, that is, an Empirical Truth, by an Arbitrary Fiat, does not contradict Reason, and is therefore quite conceivable, although we may have no experience of such a case.

Here let us apply our *Test.* The "Learned Barrister" does his idea great and fatal damage by adopting UNIVERSAL Truths for the purpose of his illustration. All his three suppositions were in the UNIVERSAL sphere. Had he seen the distinctions of the *Two Spheres of Truth*, he might have adopted NATURAL Truth, with success, and with even more popular effect. Let us supply such a case here:

125[illegible]

"There is a world in which all the animals can walk on the water, as well as under it; man can float in the atmosphere, and all vegetation is of a red colour." These three suppositions are all in the NATURAL sphere; and the phenomena would not appear strange to that world's inhabitants. Neither would any of them be illogical. We have shown elsewhere that all Arbitrary (NATURAL) facts are liable to possible change, either in this or in any other conceivable world.

No better instance could have been found to corroborate the value of our TEST, which springs from the consideration of the *Two Spheres of Truth.*

Of Mr. Mill, who approves the idea of the "Learned Barrister" as ingenius, Prof. Max Müller thus speaks: "He attempts to live at the same time as a chrysalis and soar about as a butterfly. . . . He ought to define first of all what he means by Matter. . . . Definition is the only remedy which the Science of Thought can prescribe. . . . For better or for worse language and thought are inseparably united; a divorce means destruction to both. . . . We see how dear Bishop Berkeley forswore the use of words, but could forswear them in words only. . . . The Science of Thought is to the Science of Language what Biology is to Anatomy. . . . The two are really one. Yet, in the progress of human knowledge, the firm foundation had to be laid by the Science of Language before it was possible to erect on it the new edifice of the Science of Thought, or to indicate at least how it might be carried out by those who will come after us." * We have already seen

* "The Science of Thought," pp. 615, 617, 618 (Longmans, 1887).

that Thought is another name for Mind. So wrote Sir Henry Wotton (1568):—

> "Happy is he born or taught,
> That serveth not another's will;
> Whose armour is his honest Thought,
> And simple Truth his utmost skill."

The question of Freedom of Will is one of the most important in philosophy, and must be further considered in future Lectures.

We are as glad to conclude this chapter as most of our readers will be. But to have ignored this subject altogether would have been a breach of our mutual understanding, that our search after Truth was to be at least an honest one.

SIXTH LECTURE.

FREE-WILL IN MAN ONLY—REASON—MOTIVES—CONSCIENCE—REIGN OF LAW—IMPORTANCE OF INSTINCT—BEGINNING OF LIFE—LANGUAGE—SOCIAL QUESTIONS.

THERE is an intimate relation between *Motives* and Free Will which falls to be considered. The old controversy still continues between the advocates of the Freedom of the Will and those who hold Necessitarian views. The Duke of Argyll treats the subject with judicial ability, and seems successfully to refute the Necessitarian arguments of Mr. J. S. Mill. But he writes at great length, and at one point appears to hold up the question of the Freedom of Man's Will with a somewhat less firm hand than usual. This is in treating the question of *Motives.*

There is no doubt that *Motives* do interfere with the ratiocinations of Mind on any subject brought under its consideration. But to say that Men's deliberate judgments and consequent actions are *necessarily* in accord with such Motives, whether good, bad, or doubtful, seems to be an admission that Man's Mind (Will) is *governed* by Motives, and if so cannot be called Free. His Grace holds that there is no compulsion in the case, and this may *sometimes* be said, because the Will can be supposed to be willingly convinced—only, however, when Motive agrees with Conscience.

He thus writes: "Free Will, in the only sense in which this expression is intelligible, has been erroneously represented as the peculiar prerogative of Man." [We must certainly hold it to be the prerogative of Man, *not of irresponsible animals.*] "But," says the Duke, "the Will of the lower animals is, within their narrow sphere of action, as free as ours. A Man is not more free to go to the right hand or to the left than the eagle, or the wren, or the mole, or the bat. The only difference is that the Will of the lower animals is acted upon by fewer and simpler Motives, and the lower the organization of the Animal, the fewer and simpler these Motives are." * With the last part of this proposition all will agree, but the reader will observe here that the going to the right or the left is *always* an act of Instinct in the Animals, while in the Man it may be an act of mere Instinct *in one case*, while *in another case* it is altogether an act of Reason; and thus it cannot be said that "Man's will is not more free than the Eagle's," *seeing that Reason always is free and supreme over Instinct.*

The senses of sight and smell, as well as of hearing, are very much keener in Animals generally than in Man. We have already shown that Animal-Memory is an *endowment* of Instinct, and so belongs to the *Natural* Sphere. On the other hand, human Memory is a *faculty* of Mind, belonging to the *Universal* Sphere. The higher degree of intelligence in some animals, and in some kinds of animals, beyond that of others, is simply this. They are endowed with just so much as their circumstances require, or their

* "The Reign of Law," 5th edit. p. 304, 1868.

experience teaches, so as to meet the greater or less exposure to danger of their individual life and well-being. But all is at best *merely the intelligence of Instinct;* there is no evidence whatever of the existence of Reason in the matter. A recent writer on this subject says, we think unwarrantably, that "many of the Mammalia are capable of reasoning upon observed facts."* Dr. Cope is eminent as an expert in Palæontological and Zoological science, but not necessarily an authority in purely Psychological questions.

Almost all these differences arise from not clearly distinguishing between Instinct and Reason, and between Instinct-Motives and Mind-Motives, and from forgetting that the word "Will" is just another name for Mind itself.

"Thus the muscular contractions of the human body are of two kinds: First, the instinctive motions, most of which are constant, unconscious, and lasting with the duration of life itself. The second are ruled by Mind, and are intermittent, voluntary, and capable of being destroyed. Both act by the use of means, but it is only in the case of the second kind that these means are at the bidding of Will. It is not experience which teaches us, in the first kind, how to use those means—it is purely Instinct. We are not here conscious of the very existence of the means we employ, or of what their ultimate nature is. . . . No experience whatever is required to teach a child how to extend its limbs, nor how to exert its voice." †

* "Origin of the Fittest," by E. D. Cope, A.M., Ph.D. (Heidelberg), (Macmillan, 1887).

† "The Reign of Law," p. 292.

If the reader will keep in mind that Instinct belongs to the NATURAL Sphere, and Reason to the UNIVERSAL or spiritual, the confusion will greatly disappear. As regards Motives, the same remark applies. In Man the Instinct-Motives are distinct from all others, for example, distinct from love of glory, ambition, envy, despair, which are not Instinctive, but belong to Reason, and are of the UNIVERSAL Sphere.

The Animal Instinct and the Instinct of Man are both influenced alike by all Motives which appeal to Instinct.

It has been shown that Instinct is limited to the considerations of the preservation of the individual life, its offspring, and all that tends, directly or indirectly, to the gratification of animal appetites, pleasures, and passions, *and extends no farther.* So that in the case of the lower animals such Motives *must* undoubtedly rule their actions; and thus it appears that *Animals really have no Free Will whatever.* Nor can they be possessed of *Conscience,* for that belongs to the Universal Sphere. Indeed, being entirely devoid of Free Will, conscience would evidently be of no service to them.

In the case of Man, such Motives will equally tend to rule his actions. But he has higher Motives acting upon his (Soul) Mind, which may be good, bad, or morally indifferent, and all these Reason will consult and weigh, and will naturally accept the most powerful. But if the decision be morally wrong—untrue or unjust — Conscience will demand an arrest of action, *and, purely by conviction,* will so influence the Will as to throw all unworthy Motives aside, pro-

vided the Mental faculties are healthy. According to Goethe—No one knows what he does when he acts rightly, but when we do wrong we are always conscious of it.

Consequently, if the Man's Mind is *intelligent and honest*, his Will will be *free* to act aright, and not by compulsion or inducement of all or any Motives whatever. Milton wrote: "True Liberty, . . . Which always with right reason dwells." An imprisoned poet wrote:—

> "If I have freedom in my Love,
> And in my soul am free,
> Angels alone that soar above
> Enjoy such liberty." *

In this free decision of Will, Conscience does not act as a *Motive*, but is an independent property of Man's Mind within itself. Sir John Lubbock says, "The beautiful idea that every man has with him a Guardian Angel is true indeed; for Conscience is ever on the watch, ever ready to warn us of danger." † Dr. Cope says, "I leave Conscience out, as not belonging to the category of inherited qualities." ‡

Nor does it ever act by compulsion; for, like Man's Will, it is free. Often do Men refuse to adopt the convictions of Conscience, but always with future regret. As Shakespere wrote:—

> "'Tis one thing to be tempted, Escalus;
> Another thing to fall." §

And Robert Burns, whose opinion is worthy of con-

* Richard Lovelace, 1658.
† "The Pleasures of Life," part ii. p. 221 (Macmillan).
‡ "Origin of the Fittest," pp. 168–178.
§ "Measure for Measure."

sideration, evidently thought so. In speaking of wrong-doing he said:—

> "One point must still be greatly dark
> The *moving why* they do it:
> . . . . . .
> What's done we partly may compute,
> *But know not what's resisted.*" *

Dr. Cope says: "The Divine Spirit planted in Man shows him that which is in conformity with the Divine Mind, and it remains with his free will to conform to it or reject it." A western poet thus writes:—

> "This I know:
> The Soul's great Freedom, gift of gifts—the first,
> Thou first on Man in fulness didst bestow." †

With the same fine feeling, William Cowper has written:—

> "'Tis liberty alone that gives the flower
> Of fleeting life its lustre and perfume,
> And we are weeds without it." ‡

If Conscience is not one of the faculties of Mind, and is independent of the Will, it may be asked, "On what *basis* does it stand as a judge of conduct?" We think the only answer must be that the basis is the *unwritten* Commandments of the Decalogue, which seem to be an *inherent* property or endowment of Conscience. We are told that the "heathen" having no prescribed Law are a law unto themselves. The most uncultivated Savage evidently has some dim idea of right and wrong very much in accord therewith.

This appears to be borne out by the fact that all

* Burns' Poems. † Poems by De Vere (King and Co., 1877).
‡ "The Task."

Savages worship some Supreme god or gods (our "First Commandment"). If utterly savage they are the more religious (superstitious), and to satisfy their god they willingly sacrifice everything else—slaves, and even their own children. Thus, so very imperative does this *first* Command seem to them, that it almost overpowers the others. When the author of Christianity appeared he substituted a new Decalogue for the Ten Commands. "Thou shalt *not*," by a new injunction became, "Thou *shalt* love the Lord thy God with all thy heart, and thy neighbour as thyself." The old Decalogue thus gave way to a new and more *spiritual* one of LOVE, which obviously belongs to the UNIVERSAL sphere, and may still maintain all that was *spiritual* of the old.*

"Heroic Greece and triumphant Rome had looked on freedom as the privilege of the few; by Epictetus, the Phrygian slave, it was preached as the inalienable inheritance of every son of Man." "We find all the ideas of the Emperor Marcus Aurelius in the pages of his predecessor, . . . the sense of pettiness, of worthlessness in life which oppressed the ruler of the Great Roman world had no place in the thoughts of the slave. Epictetus believed in the omnipotence of Will."

Mr. J. S. Mill says that the word Necessity means only Invariability, and does not include Compulsion; but Argyll objects to this word as ambiguous, and defines Freedom thus: "Freedom of the Will can only mean that the Will is free from compulsion." †

* "The Moral Idea: a Historic Study," by Julia Wedgwood (Trübner and Co., London, 1889).

† "The Reign of Law," chap. iv.

Here it is proper to state that our quotations from "The Reign of Law" are very incomplete, being selected only to aid or to contrast with our arguments. By themselves they give a one-sided and unfair idea of the Duke's opinions; thus, after saying that "Man's Will is free in the same sense and in the same sense only [as that of the lower animals], it is subject to law in the same sense, and in the same sense alone." He now adds: "That is to say, it is subject to the influence of motives, and it can only choose among those which are presented to it, *or which the mind has been given the power of presenting to itself.* . . . But in this last power we touch the secret of that *boundless* difference which separates Man from the highest of the animals below him." * *Now* we seem to be at one with the Duke, as to the *gulf* which exists between man and the animals, but the origin and action of this "*power*" are still not quite clear to us, unless by it he means Conscience.

The whole question of Motives seems to have given rise to much difference of opinion. Thus his lordship's views, as referred to above, appear to be disputed in a friendly controversy with Dr. Ward, and subsequently with Mr. Mahaffy, especially in regard to the "abstract predictability by another Mind of human conduct," and as to the meaning of the word "Motives." †

We have shown that Animals are devoid of Free Will, but it has been held that some men are equally devoid of it, inasmuch as they are slaves to their

* "The Reign of Law," pp. 305–6. † Ibid, notes F and G.

appetites, being educated in vice from their earliest years. Thus Mephistopheles—

> "Poor wight,
> But for thy gift, a gleam of heavenly light;
> Reason he calls it, and doth use it so
> That e'en than brutes more brutish he doth grow." *

Having thus *almost* no knowledge of right and wrong, nor any moral training, they are said to be no more responsible to moral constraint than the animals, and like them are without motives to well-doing other than the fear of punishment or the bribe of reward. Consequently it is said they will be ruled only by Instinct-Motives. This may be to a large extent true, but is *not absolutely so in any case*, because they all possess Conscience, which is quite distinct from Instinct, and which will—although sometimes it may be feebly—warn them if they do wrong or unjustly. "Even the metaphysician who has ignored Conscience is compelled to lean on it every instant."

There is still another kind of Motives, which it has been suggested influence the Mind. These are congenital motives, not external, but resident within the Mind itself, and analogous to habits of the body, which devolve from parent to son. Of such motives, whether of body or mind, we are usually unconscious. However marked this inheritance may be in outward manner, it cannot control the operation of the Mind, but only prejudices it; *and all improper motives of this class are, or ought to be, still under control of the Will and Conscience.* Of Motives the two most powerful are *Love* and *Selfishness.* Is the first all that remains to us of the original paradise? It is

* Goethe's "Faust," Prologue.

celebrated in song and famous in story;—the second ignored in both, but universally entertained and indulged in Society at large. It is the moving power alike in the empires and the nations great and small, in the court and the camp, in the senate and the churches of every name, in the bar and the bench, in the class and in the family, in the master and the servant, and in both sexes without distinction. It has been so in all ages. None of us can truly say we have personally escaped its contagion.

Dante has been quoted to show that Motives are all-powerful in Man, as in the lower animals. What he wrote * was this:—

> "The soul created apt
> To Love moves versable which way so e'er
> Aught pleasing prompts her, soon as she is wak'd
> By pleasure into act."

But he further adds the following fine passage:—

> "Ye have that virtue in you whose just voice
> Uttereth counsel, and whose word should keep
> The threshold of assent. . . .
> All love that glows within you: *to dismiss*
> *Or harbour it, the power is in yourselves.*"

Freedom of will is set forth here as sufficient to overpower the influence of motives. As to the lines preceding these—

> "such in you as zeal
> In Bees to gather honey; at the first,
> Volition, meriting nor blame nor praise,
> But o'er each lower faculty supreme,
> That as she list are summon'd to her bar"—

we remark that the Bee gathers honey under the supreme influence of Animal Instinct, and Man is certainly influenced in the same way to gratify his

* "Purgatory," canto xviii. (Cary's Translation).

Instinct appetites. But in his case, such influence is *not* necessarily supreme over Will; he has "that virtue in him [in his Mind] which should keep *the threshold of assent.*"

Principal Caird writes: "By a false analysis of the supposed phenomena of the Will into Motives and Volition, we are led to represent the former as something spatially external to and acting on the other—Motives as pushing, impelling, restraining the so-called faculty of Will, in the same fashion in which one physical agent acts on another. But in all this we are really imposing on ourselves by a fiction of externality and necessity." *

Mr. S. Laing † furnishes us with an illustration of Instinct-Motives in the case of irrational animals, which he is disposed to interpret as Mind-Motives. "Suppose," he says, "a retriever dog sees his master shoot at and miss a hare. Shall he obey the promptings of his animal instinct and give chase, or those of his higher moral nature, which tell him that it is wrong to do so without the word of command? It is hard to see how this differs from the case of a man resisting or yielding to temptation; and how, if we assign conscious will to the man, we can deny it to the dog. . . . Reasoning from these premises, some philosophers have come to the conclusion that man and all animals are but mechanical automata, cleverly constructed to work in a certain way. However," he adds, "no amount of philosophical reasoning can make us believe that we are altogether machines."

* "Introduction to the Philosophy of Religion," p. 198.
† "A Modern Zoroastrian," p. 89, 1887.

The answer to the retriever dog illustration is simply this. The motive to give chase is Instinctive, and must be acted on unless some other animal and instinctive motive, more powerful, exists. If he has been thoroughly trained, he *instinctively* knows by experience that his punishment will be very much more severe and important than the value of many hares, and so he will obey the more powerful of the two motives—that is, the avoidance of pain. Observe that both motives alike are animal and instinctive. The idea of a higher moral animal nature is a mere sentimental figure of speech.

The question of the Freedom of the Will may seem too metaphysical for some readers, but it is of very great importance, and in view of the somewhat prevalent confusion which exists on the subject of Motives we must resume its consideration. A recent writer holds that, "A man with a criminal nature and education, under . . . temptation can no more help committing crime than he could help having a headache under certain conditions of brain and stomach. . . . In neither case can the Will operate directly to suppress either crime or headache." Here the reader will observe that the committing of a crime is a *wilful* positive action, the having a headache is not the committing of a positive act at all, but the result of physical illness. The Will *could* suppress the crime but not the headache. There is no resemblance between the two cases. But we resume the quotation: "The sooner the idea of moral responsibility is got rid of, the better it will be for the society. . . . The bad man has no

conscience; he acts after his malignant nature. . . . His mind is made up to choose the bad."

We question the statement that any man exists who never had some glimmering of Conscience. If he malignantly makes up his mind, he is morally responsible therefor, and if he chooses the bad he had a choice—that is, freedom of will. "But," adds this writer, "society, knowing its own interests, has a right to exclude him from its fellowship, not only to prevent and punish his evil actions, but to suppress him in some effectual way, and above all prevent his leaving a posterity as wicked as himself." Again, "Conscience alone is a deceitful guide: like justice it is blind, it will do evil as readily as good."* This we cannot admit, Conscience may be imperfectly informed, but is never deceitful.

We have often been told of the "Survival of the Fittest," but now it is said that the survival is not of the fittest, but of the most unfit! We read that "it is the feeblest, the least moral and most worthless classes of the community who multiply the most rapidly." "It is the pauper and criminal class which supplies the human rabbits who multiply in the warrens of our great cities. . . . The educated and well-to-do increase much less rapidly." This writer demands that statesmen should "interfere by imprisoning for life all habitual criminals. . . . to prevent them from multiplying their kind." Another writer says "that about twice as many children are born to persons who are habitually

* "The Service of Man," by James Cotter Morison. Preface, and ch. ix. (Kegan Paul, 1887).

underfed as to those who live in ease and luxury." * Somewhat in relation to this subject Herbert Spencer says: "It would seem that just as there are habitats in which only inferior forms of animals can exist, so in societies physically conditioned in particular ways, the inferior forms of domestic life survive because they alone are practicable." †

Statesmen are not likely to attempt the extermination of this lowest class. There is neither the possibility nor the necessity for doing so. Even these human rabbits have in them the germ of Reason. Were the multitudes of their children, possessed of no real home or parental care, legally carried off to a distance, trained strictly, with liberal rewards and by punishments of a parental character, and educated in the country, or preferably in the Colonies, a very large and valuable class of workers might be obtained for service in the world. It would be work alike beneficial and economical; for crime is debasing, contagious, and from beginning to end costly in the extreme. The existing Reformatories are doing excellent work, but are continually being checked by worthless parents, who await their children's discharge therefrom to seduce them to drink, and to commit greater crimes for the gratification of their own drunkenness; and thus perpetuate the rabbit-warrens and fill the gaols. Such parents have long ago forfeited all rights of parentage whatever. A recent writer says: "We jealously guard 'the divine right' of vicious and brutal parents to make their children brutal and vicious like them-

* "Tries at Truth," page 11, by Arnold White (London: Isbister and Co.).
† "Principles of Sociology," i. p. 677.

selves." "O Liberty! what crimes are committed in thy name!" A lady victim of the French revolution so exclaimed standing at the foot of the guillotine.

Before leaving this subject of Motives, let us resolve them into their two different kinds, by the application of our TEST. Motives are thus seen to be of two kinds—Instinct-Motives and Mind-Motives—which are not only different, but *incommensurate.* Instinct-Motives, not only in the animal but in the Man, belong to his NATURAL sphere, and rule or influence conduct accordingly: in the animal entirely so; but in the Man, Mind belongs to the UNIVERSAL or spiritual sphere, and, as we have seen, can always over-rule Instinct. Thus Man has always a choice of conduct, both as to his Instinct-Motives and as to his Mental-Motives, based upon his Freedom of the Will, of which all lower animals are devoid. This is corroborative of our views of Motives as already given. The Will is a faculty of Mind (UNIVERSAL), and therefore *may* always assert its freedom, even in the case of the most debased. We say "may," although in these cases experience shows us that such assertion is rare indeed. To this circumstance we must attribute the contradictory opinions which prevail amongst thinking men on the subject.

The Brain is popularly considered a Mental Faculty, but being a physical organ, it only, *as such,* belongs to the NATURAL sphere, and with the spinal marrow, seems to be the seat of Life both in animals and man. "The human brain is the most complex organ found in the zoological series, and thought,

which accompanies it, is the highest endowment." What Life is we do not know. It seems paradoxical to say that, although we may be able to see "What is Life," we yet cannot define "What Life is." It is a simple idea to use a phrase of Isaac Taylor's. The Brain (NATURAL sphere) is, in Man, generally called the Seat of Thought (UNIVERSAL sphere); but, as we shall find, there is no means of solving the mystery of the communication which obviously exists between them. This is a question which we further consider later on.

As to the cause of Life, we must remain ignorant. Du Bois-Reymont admits that now "the first origin of Life seems veiled in yet deeper darkness than when the hope might be cherished of seeing in the laboratory, under the microscope, life produced from dead matter." A recent writer has said: "The real puzzle is, how anything comes to exist—anything whatever, either Mind or Matter." * While another has well said: "Without supposing a supernatural impulse communicated to matter, no adequate cause for the first movement can be imagined." †

Dr. Robert Chambers said that "the appearance of limestone beds in the early part of the stratified series [of rocks] strongly suggests the fact of the commencement of Organic Life upon our planet, though we cannot say that any of its special forms are made clear to our eyes." ‡ Limestone is a carbonate of lime, a secondary compound, while

* "Stones of Stumbling," by Hon. Lionel A. Tollemache (William Rice, London, 1891), p. 198.

† "Natural Theology and Modern Thought," by J. H. Kennedy, 1891.

‡ "Vestiges of Creation," ch. ii.

"carbon is the main ingredient in organic things." "There is reason to believe that its primeval condition was mainly that of a gas." "The quantity of carbonic acid gas locked up in every cubic yard of limestone is estimated at 16,000 cubic feet. The quantity locked up in coal must also be enormous." However, neither of these possess any element of Life, and the argument only suggests the belief that the beginning of life was the direct gift of the Creator.

Man is distinguished by Reason (Mind); whilst Man and the lower animals in common are possessed of Instinct, which, as we have seen, occupies itself with the preservation and well-being of the individual and its offspring. Its operation is more obvious in the lower animals than in Man—so much so that in some quadrupeds and birds the power of Imitation and Animal-Memory seems to take the semblance of Reason; for Instinct displays Animal-Memory and Observation in an almost incredible degree of intensity. But this *semblance* to Reason, as it seems to us, is partly the result of Man's training—by hunger, or by still more cruel treatment—and does not originate with the individual animal; nor do such artificial accomplishments descend to the next generation. Instinct-action may be increased or diminished by change of climate or food, or by protection from former natural enemies, and by the varied surroundings of the animal; but it can never advance beyond its own province.

In Man also Instinct is possessed for his personal preservation and guidance, and it regulates, for the

most part, the countless movements and processes of his body, of which Mind may be, and generally is, unconscious, and over which it rarely exercises any control. Instinct is essentially an attribute of all animal *Life*—no animal Life without Instinct: no Instinct without animal Life—the two are identical. Paley describes it as prior to experience, and independent of instruction. Of human Instinct Shakespere wrote:—

> "By a divine Instinct, men's minds mistrust
> Ensuing danger, as by proof we see
> The waters swell before a boist'rous storm." *

Instinct in Man is a much more important factor than it at first consideration appears. For example, bravery or courage is to some extent a constitutional gift, but influenced partly by Instinct. The Mind may firmly resolve to perform some brave and noble deed in battle, but, no matter how strong the reasons urging to its accomplishment, the influence of Instinct may sometimes, in the absence of very high constitutional courage, cause failure just when the supreme moment of peril to the Life arises, and that, notwithstanding the most resolute will. In this case there seems to be a *momentary* rebellion of Instinct against the sovereign Mind—the *Natural* against the *Universal*—called into action *involuntarily for the preservation of Life.* But it is only *momentarily;* for Mind (Free Will) must ultimately prove supreme.

In the routine of our daily life, Instinct even more than Reason acts as our *ever-present* guide. Instinct

* "Richard III." act ii. sc. 3.

of this kind is sometimes called "habit," but its operations otherwise are extremely important and multifarious; and so very obscure as to be beyond the ken of Consciousness (Mind) and not to be searched out. Mind is a spiritual (*i.e.*, UNIVERSAL) Entity; Instinct is not an Entity, but only a condition or NATURAL endowment; and consequently they are incommensurate, and cannot amalgamate, although their separate lines of action sometimes *seem* to become mutually intervolved.

Comte fails to show that Instinct is not essentially different from Mind. Man, he says, shares with the brutes a twofold life, Instinctive and Rational; the difference between them being the greater or less development of the cerebral organ, or the various modifications of the nervous system*—which is a Materialist argument, and nothing more. Here we have another instance of leaping across the gulf of separation, again absolutely without proof. Professor Rutherford supplies us with one somewhat similar. "With sensations there must be consciousness that the conscious impressions varied with the different causes, and had gradually led up to the formation of ideas." The learned professor seems to break his leap by using the word *Consciousness.* We have shown elsewhere that Consciousness is just another name for *Mind*, so that the reasoning is in a circle. If mere Animal-Consciousness is meant, the proposition may be admitted, but in that case the fallacy lies in using the word *Ideas*, which properly belongs not to the Instinctive or *Natural*, but to the Mental *Universal* Sphere. If, on the

* "Comte's Philosophy of the Sciences," by Lewes, sec. xxi.

other hand, Professor Rutherford means *only* Instinct-ideas, his sentence may be accepted as it stands; but *the gulf remains unbridged.* Hume distinguishes between Impressions and Ideas. By impression he means all our sensations, passions and emotions. By ideas he means the faint images of these in thinking and reasoning.* Thus ideas belong to the *Universal* sphere.

In connection with this matter, Sir William Hamilton, writing on the subject of Instinct, is puzzled to account for the "whole apprehension of distance," &c., which some animals possess from birth, and the remarkable innate perception of vision and touch which they exhibit. He adds: "How can we determine whether and how far Instinct may not in like manner operate to the same result in Man?" He gives some very interesting examples of the intuitive ideas of the young of birds, entirely independent of any parental or other examples. The use of the word "ideas" here is again somewhat misleading; of course, Instinct-ideas, if we must use the word, possess no element of Mind whatever. There is a family of birds in Australia of which we are told that "from the moment the young are hatched (even in absence of the parent) they feed themselves, and run and fly and roost on trees, as if the world, on which they have just opened their eyes, had been long familiar; . . . a fact of immense significance in the phenomena of organic life. . . . But there is no fact standing alone—not one, which is not bound to the whole order of Nature by deep analogies." † In the above case it is clear that *the*

* Hume's "Human Nature," bk. i. † "The Reign of Law," chap. vi.

highest Intellect would be of no avail, more especially as there was no experience. This is another illustration of the fact that Instinct—not Mind—is the *sole ruler* of Animal Life. An apparent exception seems to be shown by certain Apes who build a kind of temporary platform, connecting the branches of a tree as a resting-place for the night, but this is evidently a simple act of Instinct.

If our preceding definition be correct, the difficulty, so far as *mere Life* is concerned, can be solved only by recognizing that all its actions and facts are *entirely* the operations of Instinct in both Animals and Man, Reason (*i.e.*, Mind proper) having nothing directly to do with them. These facts are much more prominently shown in Animals than in Man, because, as we have seen, animal senses are, in general, immensely more powerful and keen than Man's.

Instinct, as already shown, is a NATURAL inherent and essential property of Animal Life. It is neither immortal as to duration nor indefinite as to degree, but strictly limited to the necessities of the individual animal life.

It is not merely desirable but *necessary* that the difference between Instinct and Mind proper should be kept clear, for upon this distinction Truths of immense importance are based. Some writers have named the Mind of Man his Soul, so that in one view Man may be said to be possessed of three distinct properties: (1) A Material Body (mortal); (2) An Instinct-Mind (mortal—which includes all his animal properties and appetites); and (3) A

Soul-Mind (which is immortal, and includes Reason, and all Mind's other faculties). Under these heads there certainly is less confusion of thought—the first and second, being mortal, are NATURAL facts, the third is a spiritual or UNIVERSAL truth. Emerson wrote—"All goes to show that the Soul in Man is not an organ—not a function like Memory or Comparison—is not Intellect or Will, but the Master of both—is the background of our being in which they lie. It is not a faculty, but a *Light*." In short, the Soul is the Human Mind itself. "All our dignity," says Pascal, "lies in our thoughts."

The lower animals, on the other hand, are possessed of a Material-Body and an animal life, with its associated Instinct-Mind, if we must use that word; but they reach no higher. Notwithstanding that these—*i.e.*, Body and Instinct—are nominally the same as possessed by Man, they are in some sense different, and in many cases more powerful in degree. Thus, for example, the elephant's body is more powerful than man's, and its Instinct may be more acute; but "Man thinks," said Buffon, "and at once becomes the master of the beings that do not think."

Wonderful cases are from time to time recorded showing that Instinct assumes a semblance of Reason, but a semblance only; for animals cannot generalize, so that ideas of equality, beauty, comparison, meanness, &c., are to them quite unknown, for these imply Abstraction. One of the best imitations of Reason which they show is perhaps the wonderful power of Imitation or mimicry in several animals and fishes. By adopting the colour of, and

feigning resemblance to, some other animal, vegetable, or stone, they often secure immunity from a pursuing enemy. This is entirely an act of Instinct, for preservation of their life. Another remarkable imitation of Reason is shown by beavers in breaking down trees, and therewith forming their houses at the margin of the stream, and even in banking up the stream, to keep the water at the proper level. All this is purely instinctive; but the supposition that they drive piles into the ground is erroneous. This would involve the use of some kind of tool, which Animals never either make or use.

Again, the faces of all the irrational creatures look downwards to the soil, while Man, and Man alone, is formed to walk *erect* and look upwards to the heavens. It, therefore, seems to be the province of Instinct to look earthward, but that of Reason to look not only "before and after" in time, but also upward in space. Our great poet has beautifully expressed this thought:—

> "What is a man,
> If his chief good, and market of his time,
> Be but to sleep and feed? a beast, no more.
> Sure, He, that made us with such *large discourse*,
> *Looking before and after*, gave us not
> That capability and *godlike reason*
> To fust in us unused." *

Even this fact alone seems to give us assurance that Life in Man is not altogether the same kind of life as that of the mere animals.

An Evolutionist admits that "much of the mystery of Instinct arises from the persistent refusal to recognize the agency of Imitation, Memory,

* "Hamlet," act iv. sc. 4.

Observation. . . . Yet there is ample evidence that such agency must be taken into account. That Reason ever forms any part of it, however, we find no evidence of whatever. . . . Thousands of birds annually fly out to sea and perish, showing that the Instinct to emigrate is imperfect." * But then we must admit that neither Reason nor human observation is perfect. We know that fishermen often go out to sea, deceived by the usual weather prognostications, and perish in the gale.

Some apparent exceptions to our definition of Instinct in Man are, we think, capable of explanation if carefully studied; and, as regards the irrational animals, no exceptions can be proved. In themselves they really have shown no fraction of natural progress towards Reason, nor the very least tendency towards improvement. Under Man's coercion an apparent improvement may appear, but it is unnatural and artificial, and disappears in the next generation, if left to Nature.

Some animals show great affection towards those who aid them in their natural means of preserving their own, or the life or well-being of their young, by supplies of food or protection from enemies; but only on such grounds. They have no feeling of justice, magnanimity, or generosity, apart from such considerations, and apart from their *natural qualifications and endowments for usefulness to Man.* For there is no waste in Nature, and perhaps no Animal is without some use in the service of Man, often very indirectly; and the same holds true of

* "Darwinism," p. 442.

all vegetation. So far as appears, the guiding principle in Animals is directly or indirectly based on Instinct-selfishness. As we have seen, selfishness is an active principle in Man also: but all men have at the same time a higher guiding principle, less or more active. No doubt Man can train some individual animals to perform great services in saving life, by training and instigating their special *natural* instincts into action.

The question of training is one of great importance; for while no animal can be trained to act (except by mere imitation) beyond the sphere of Instinct, Man has the power of greatly cultivating an animal's special qualities. This seems to strengthen the theory held by Owen, and some other authorities, that many animals such as the horse were created primarily and *specially* for Man's personal and domestic service. Sir Walter Scott shows the value of training in the case of Dandie Dinmont's terriers, Pepper and Mustard, as compared with that of little Wasp, whose master admitted that its "education had been somewhat neglected." * A terrier naturally flies at all animal vermin. Such a dog in a state of nature would do so to destroy an annoying and very undesirable competitor on his domains. But one domesticated would do so partly for the same reason, and partly because he could read his master's approval in his eyes.

The Duke of Argyll writes that "*On her own sphere, Instinct is a surer guide than Reason;*" † and certainly many facts tend to corroborate his

* "Guy Mannering." † "The Reign of Law."

words. With reference to the wonderful instinctive knowledge shown by some animals, Sir John Lubbock says, "There may be fifty other senses as different from ours as sound is from light. These and a thousand other questions remain for solution. The familiar world which surrounds us may be a totally different place to other animals. To them it may be full of music which we cannot hear, of colour which we cannot see, of sensations which we cannot perceive." *

The swallow of to-day builds her nest *exactly* on the model of the first historical swallow, and shows not one iota of improved workmanship in the operation. "Two dogs will fight over a bone, but no two ever deliberately agreed to barter one bone for another." "The autumnal spider," as was remarked by M. Claudius, "spun its web among the Romans in the same wonderful mathematical form, with peripheries, radius, and centre," and as Ælian remarks, "it does its work without Euclid. It sits in ambush in the centre of its web just as it did a thousand years ago."

But Language is the most marked distinction between Man and the lower animals. "Language," says Mr. Lloyd Morgan, "and the analytical faculty it renders possible, differentiates Man from the brute." Speech, except in so far as depends on Imitation, as in parrots, monkeys, &c., is beyond the reach of the mere animal, because Language is framed by a process of Abstraction,† one of the

* "The Senses, Instincts, and Intelligence of Animals," p. 192 (Kegan Paul, 1888).

† "Stewart's "Philosophy," ch. iv.

principal functions of Mind, and consequently belongs to the *Universal* sphere.

No doubt numerous instances have been recorded, not always very correctly and impartially, of *apparent* Intellect shown by different animals, and in various ways. The popular mind, we fear, has long been unintentionally misled by numerous and sometimes well-authenticated anecdotes; and before us is a volume of three hundred pages of such, showing wonderful so-called proofs of Reason in Animals, especially in pets. But keeping in view their *extraordinary powers of observation and keen perception*, with their faculty of Imitation, we are satisfied that for *all* of these Instinct, and Instinct alone, can account. The entire absence of Reason is illustrated by an old, and, we think, an authentic anecdote. A believer in Animal-reason went to purchase a speaking parrot from a trainer. Several birds glibly spoke. One, "Glad to see you," and so on. One, however, proved taciturn, but when the trainer asked, "Why don't you speak?" said, "I think the more." Astonished, the purchaser secured the feathered philosopher, but at home discovered that it could when so asked always say, "I think the more," over and over again, but to the intense mortification of his new master, nothing else. Of course due allowance must be made for the influence of Man's example and training, especially in the case of domestic pets. But over and above this influence, there is to be considered their power of imitation and the *immense* superiority of the organs of sense, already mentioned, which many animals possess, and with which those of Man cannot be

compared. For example, see the remarkable acuteness of some wild birds, which can detect the motion of a mere insect, or see a fish in the water, or scent the slightest smell of food at distances almost incredible, and specially so when snow has fallen. "Animals hear sounds beyond the range of our hearing, and can perceive the ultra-violet rays which are invisible to our eyes." * Then we see the Arab's horse, the shepherd's dog, and the house cat—all of which can see, not the thoughts exactly, but *the wishes of their master in his face, as no fellow-man can*, and act accordingly; but still only Instinctively, and free of reason, although sometimes in a manner singularly resembling it, and yet more often *where reason would be of no avail whatever.*

This remarkable acuteness of some Animals in reading their master's wishes has not received the attention it deserves. The schoolboys can prognosticate their teacher's temper, "and read the day's disasters in his morning face." † This is an easy task in comparison, but to the Animal world it is of great importance that *Man's eye and his every movement becomes to some of them a kind of Language which they can read with marvellous quickness.* Next to the eye the hand seems the most emphatic revealer of Man's mind and wishes. Montaigne (1533), the French philosopher, says: "With the Hand we demand, promise, call, dismiss, entreat, deny, encourage, accuse, acquit, defy, flatter, and indicate silence, and with a variety and multiplication that

* Sir John Lubbock's "Senses of Animals," p. 191 (Kegan Paul, 1888).
† Goldsmith.

almost keeps pace with the tongue." This is in reference to our fellow-men, and in reference only to the Hand; but some Animals, having our features and whole body in view, can read such Language with fourfold acumen — in some cases, perhaps, tenfold. Speaking of animal instincts and intelligence, Sir John Lubbock says: "To ascertain their adaptations and their relations to the forces of Nature . . . constitutes the true interest of Natural History, and may even give us a clue to senses and perceptions of which at present we have no conception."

If the reader will keep this in view he will be able to explain many anecdotes of Animals, which we everywhere meet with, given as evidence of Reason but really arising from Instinct alone. It must be observed further that this unspoken Language is by no means always intentionally used by us; to animals it may be so generally, but to our fellows perhaps more often unintentionally.

Many anecdotes given to prove the existence of Mind in some animals really prove quite the reverse. A lady relates that her little dog always gladly accompanies her in her almost daily calls upon neighbouring friends. There is, however, one house to which a dog cannot be taken. She says that should she any day resolve to visit there, the dog knows her intention almost as soon as she does, and at once, without any indication on her part, takes itself off. This she says, "proves that the dog is possessed of more reason than many men are." *Here there evidently were no grounds for reason to act upon!* The dog could read in the

lady's face that he must lose her company, showing that *Instinct is in many circumstances really wiser than Mind.* This lady is by no means singular in her opinion, and we relate the anecdote because it is a very good specimen of a hundred others, very similar. Such examples of unreason only show how very inveterate the fallacy of this question regarding Instinct and Reason generally is. Speech is perhaps the most patent proof of Mind. Man may possibly, to some extent, discover the meaning of Animal-speech or, rather, cries, and they somewhat of his, but only by the experience of hearing many repetitions. In Dryden we read of the wonderful powers of the human voice:—

> "He rais'd a mortal to the skies;
> She drew an angel down."

He represents Eloquence; *she*, Music. Both are of the *Universal* sphere—the one, native of the earth; the other, a native of paradise.*

Another distinguishing mark between Instinct and Reason may be added. Animals in their wild state eat their natural food in preference to any other, however finer or more luxurious. The natural food of animals needs no preparation whatever. Although blackbirds watch the gardener sowing his peas, and see them grow up, as much for themselves as for their master, they cannot reason from cause to effect. They pick up the seeds, generally showing no effort to aid other animals, unless in view of their self-preservation. No mere experience teaches them, nor are they ever known to drop a seed *intentionally* into

* "Alexander's Feast."

the ground. This is a striking example of their absolute want of reason. Some, indeed, as the Bee and the Ant, store up provisions for the winter, but purely by instinct. No animal whatever is known to do anything with a view to cultivate the ground or to promote the growth of its food. Man acts in exactly a contrary sense; he prepares the soil, cultivates every grain and fruit and herb, improving them to the highest state of perfection. Every delicacy which Nature can produce and every beautiful flower are sought out and brought from the ends of the earth, and with endless condiments garnish his dinner table, to suit his own fastidious taste and that of his guests. Thus Parnell (A.D. 1679):—

> "An early banquet decked the splendid hall;
> Rich luscious wine a golden goblet graced,
> Which the kind master pressed his guest to taste." *

Nor is this the special result of Modern Civilization. It appears equally true of the ancient manners of the Greeks. Thus (430 B.C.) Trygæus, an Athenian citizen, in the "Peace," triumphantly illustrates the blessings of her return:—

> "Cut some myrtle for our garlands,
> Sprigs in flower or blossoms rather;
> Give a shout upon the way
> To Charinades our neighbour,
> To join our drinking bout to-day,
> Since Heaven is pleased to bless our labour."
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> —FRERE.†

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* "The Hermit."

† "Pericles," by Evelyn Abbot, M.A., p. 349 (London, G. P. Putnams, 1891).

SEVENTH LECTURE.

BODY AND MIND COMMUNICATION—GRAVITATION—INERTIA—SOLAR RAYS—ELECTRICITY AND MAGNETISM—THE CORRELATION OF PHYSICAL FORCES—THE INCOMMENSURATE.

WE now propose to consider the subject of the communication which exists between the Mind and the Body in Man. Sir William Hamilton, writing of the theory of Causation, speaks of a numerous series of intermediate agencies, of which we possess no knowledge; and, consequently, he adds, we can have no consciousness of any causal connection between "the extreme links of the chain —the volate, and the act-moving." This touches the great question of the operation of the Mind upon the Body, of which we have no perception. Here, again, the confusion gendered by these imagined intermediate links, and the erroneously so-called Parts of Mind, appears, and gives an idea of *distance* between the Mind and the living Body which does not exist. For it is obvious that there is a point of contact or touch (if such words can be used in this mystical question), but *where* we cannot see.

Dryden—both a Poet and a Philosopher—thus wrote:—

"Betwixt heaven and earth and skies
There stands a place confining on all three."

Here, however, both factors are Material (Natural Sphere), whereas Mind and Body are Incommensurate.

Between Mind and the living body of Man nothing can be conceived to intervene. How they, although in immediate contact as it were, do mutually communicate is unknown. In the words of a recent writer, "The gulf between Consciousness (*Mind*) and the movements of the molecules of nerve-*Matter*, measurable as these are, is impassable; a chasm this which, though so infinitely deep, is so infinitely narrow. We can follow the steps of the mechanical processes of nerve-changes till we reach the threshold which limits the known, and beyond that barrier we cannot go." *

Here it must be observed that while in Man there obviously is intercommunication between the Mind and its Body, there is, so far as we know, no such communication between Mind and any other Matter in the Universe, whether living organisms or inert matter. There is an exception to this in some cases of Hypnotism only apparent, of which we will subsequently treat. Thus it appears probable that at death the Mind ceases to have any means of communication with the external world.

In reviewing Professor J. M. Baldwin's "Handbook of Psychology; Senses and Intellect," a learned writer says: "Believing, as we do, that Mind never has been, and never could be evolved from Matter, the question arises, From what then have mental states been evolved? If a similar question be asked

* "The Story of Creation," by Edward Clodd, p. 152 (Longmans, 1888).

with regard to molecular vibrations in the brain, the answer is not difficult." [Both are in the Natural Spheres.] . . . "But in the case of psychoses" [Mental] "from what have they been evolved?"

The question of the communication between Instinct and the living Body in animals is an entirely different one. For, as we elsewhere show, all *Animal Life is Instinct*, and Instinct is Animal Life, so that, both being *one*, no means of communication are needed.

We can conceive the possibility of Mind, which, although not Eternal, is Immortal (belonging to the Spiritual and UNIVERSAL Sphere), communicating with its human body (Material and NATURAL). Indeed, we see and feel that such communication does exist, yet, as already stated, of its mode of actual operation we have no perception. This difficulty "arises not from any misconception as to what Mind is (for of this our knowledge is direct), but from a misconception as to what Matter is, and what the Forces are which we call Material." *

To explain this mysterious action, Descartes suggested the theory of "Direct assistance of God"; but Leibnitz subsequently taught the more philosophic doctrine of the existence of "A pre-established Harmony."

In Nature we have another somewhat analogous illustration, but only in the Material Sphere, namely, in the Attraction of Gravitation. According to the general observation, Force can only act where it is; but, as Carlyle says, "Where is it?" Do we not see it acting where it is not supposed to be? the boy

* "The Reign of Law," p. 285.

with his loadstone can make his wooden swan, with its needle inside, swim towards his hand. *Where does the force act* here? Is it in the loadstone, in the needle, or in the air which lies between them? A similar question arises as to the action of Gravitation by the Sun upon the Earth, and of its action by the Earth upon the Sun, with some ninety-two million miles of apparently empty space between them.

The question of mutual contact remains an important one. Newton declared that "without mutual contact it was to him inconceivable that inanimate brute matter should, without the mediation of something which is not material, operate upon and affect other matter."

Amongst the Laws or Forces of Nature, Gravitation stands pre-eminent, and its discovery by Newton (1687), notwithstanding the opposition which it received in certain quarters, especially by the Cartesian school of philosophy, soon scattered the shadows and misconceptions with which Natural Truths were then enshrouded. Some men may have hesitated to think of it as only *one* of the Natural Forces, and not rather a separate part of Creation itself, and even as a UNIVERSAL Fact. In foreign countries, however, it was long before it overcame the doctrines of Descartes. Voltaire said "that though Newton survived the publication of the 'Principia' more than forty years, yet at the time of his death he had not more than *twenty* followers out of England."

We have seen that Gravitation is only a

NATURAL Truth. *In our present system of Natural Laws, at all events, it is obviously necessary* to the existence of the Planetary Motions. Indeed, were the attraction of Gravitation to cease, not only would their orbits be lost, but they would by their axial centrifugal motions fly in fragments into space. While, therefore, in one sense, the fact of Gravitation is *necessary* under the *existing* constitution of nature, it is not a NECESSARY and UNIVERSAL Truth. It is requisite that we keep in mind these two very different meanings of the word "necessary."

On this subject Newton wrote as follows: "The planets now could not spring from any natural cause alone, but were impressed by an intelligent Agent. . . . To adjust all these things together . . . argues that cause to be not blind and fortuitous, but very well skilled in mechanics and geometry." . . . This statement was made in relation to the argument by Lucretius "to prove the eternity of the world from a hypothesis of deriving the frame of it by mechanical principles from matter endowed with an innate power of gravity."

The density of our globe, *i.e.*, its Specific Gravity, depends upon Gravitation, and its pressure increases as we approach the Centre. But for it the waters of the ocean would fly off at a tangent, and therefore the speed of the diurnal revolution requires to be, and consequently is, restricted so as to keep this tangent force *largely within* the strength of Gravity at its surface. So largely is Gravity in excess that no cannon ball, nor any projectile which either Man or any force of Nature now throws off, can escape beyond our atmosphere by overcoming such excess.

In next Lecture we propose to refer to this subject farther.

These matters still continue to be the subject of philosophical discussion. Dr. Stirling says, "As thought is the principle of Spirit, so is Gravity the principle, the essence, the formal cause, the very self of Matter, as matter. It was Newton discovered that—that and the System of the heavens." * The question of how Gravitation-force communicates between the Sun and the earth (if force can only act by impact) remains to be explained. Is it not an independent property of Matter—not of planets and solid substances only, but of all Matter—solid, liquid, and gaseous—not excepting the rarefied air or ether of space?

This supposition being allowed, Gravity extends throughout the whole bounds of the Solar System, and so, putting every atom of Matter in contact and communication with all and every body, solid and gaseous, great and small, in the System, and all with each. Not even excepting the atoms or molecules of Ether, in which it will act with a force of attraction proportionate to their quantity or weight, besides serving as a means of communicating the attractive force of the more dense bodies to each other. It is remarkable that Dante (A.D. 1300) suggested a somewhat similar idea. He called this Ether the "Crystalline Sphere"—*il primo Mobile*, being the primary cause of motion of the planets—this, of course, long previous to Newton's discovery of Gravitation. Scientifically considered, it seems evident that, however indefinitely attenuated this

* Gifford Lectures, p. 58 (Clark, Edinburgh, 1890).

Matter (*i.e.*, Air or Ether) may be, it *must* exist throughout Space in our Solar system, and that logically no vacuum is possible therein. That being so, the boy's loadstone and the floating needle further illustrate this point; the contact in his case being in and by the atmospheric air, and the law of the force being that in all cases its action is inversely as the square of the distance. The existence of the Ether may be proved mathematically, because we know the law or ratio of the decrease of pressure of the earth's atmosphere by height or distance. Hence the density of the Air or Ether at any point might be calculated but for the many disturbing elements arising from the Gravitation attraction of the Sun, moon, and planets, which render such calculation almost practically impossible. Still the proof of existing Ether remains, although some consider it only probable.

There is an interesting analogy, and also a contrast, between the sun's rays on the one hand and the Gravitation-attraction on the other. The sun's rays, or Solar Spectrum, seem to be a three-fold emanation, consisting of (1) a White Light, which is resolved by the Spectroscope into the seven colours of the rainbow; (2) rays of Heat, which are invisible; and (3) Chemical rays, of much scientific importance, although also invisible—the Heat rays being outside the Light rays of the Spectrum on its one side, and the Chemical rays outside the Spectrum on the other. These Sun-rays act outwards from the sun's disc, in straight lines passing through the transparent Ether of Space. On the other hand, the Gravitation attraction of the sun is

inwards towards its *centre* in a straight line, the energy in both cases being in the inverse ratio of the square of the distance—these two sun forces (so called) thus acting in opposite directions. It may be imagined that Heat rays lose power by *radiation* and divergence in this ratio by passing through the presumable medium of Ether existing throughout the whole Solar System, and hence the Law. But it is remarkable that the loss of Gravity should be subject to the same Law, for it does not seem to be influenced by such obstruction. "The Sun warms and lights the earth by wave-motion . . . transmitted through a material called luminous Ether, which fills all space, . . . transmitting radiant heat (or light) without itself becoming heated." * The Ether is itself dark, the rays of light passing through it being invisible. Dr. Tyndall writes that "the part played by the luminiferous ether in the phenomena of light had been revived and enforced by the powerful experiments of Dr. Thomas Young. The undulatory hypothesis was therefore at hand." †

How high the air or atmosphere of our planet extends is unknown. It must "*pass into*" Ether at some point in space where it (the Air) ceases to revolve with the earth in its axial, or travel with its orbital, motions. At this point the density of the Air must become almost as tenuous as the Ether. This, of course, is mere conjecture, but it seems the only possible explanation of the relation between our Air and the Ether, if both can be called ponderous substances. We prefer to consider this

* "Popular Lectures," by Sir William Thomson (Macmillan, 1889).
† "New Fragments," p. 164 (Longmans and Co., 1892).

question, however imperfectly, rather than to evade it. Of this point of meeting John Milton wrote:—

> "And now in little space
> The confines *met* of empyrean heaven
> And of this world."

Inertia has been defined by saying that "a body in motion will perpetually continue in motion, and a body at rest will remain at rest, unless acted upon by some external force." The first half of this definition cannot be called in question, nor will the second half be so, although it is difficult to see that it can be experimentally proved; for there is no such thing in the visible Universe as a body at *rest*, so far as we know. Inertia, therefore, seems more entitled to be called "innate, essential, and inherent" in Matter than Gravitation is, because it (Inertia) exists only *in* the body or Matter, and does not act outside of or beyond it, as Gravitation does. "Everything," said Spinoza, "tends to persist in its own being."

Electricity, Galvanism, and Magnetism are now generally considered as belonging to one family; and Gravitation, if not another member of it, is evidently nearly related. This diminution of Power by the square of the distance appears to be a law of Nature. However, it does not seem applicable to Inertia, and this suggests the question: Can Inertia be called merely one of the Forces of Nature? or is it not rather an *innate* and essential property of Matter, as we have suggested?

Of recent years great advancement has been made in the investigation of Electricity and its cognate sciences. These Forces seem to be actively pre-

valent throughout Nature. Electricity is not a fluid, but, like fluids, tries to spread itself uniformly over all Materials. It is, we think, a mistake to speak of "Electric" and "Non-Electric" substances, because all are less or more electric. The differences arise from some being good "conductors," as Iron, and some bad, as Glass. Even Man's body is variably electric or magnetic, and the Earth itself is a great magnet, like almost every piece of Matter, but with this peculiarity, that its Magnetic Axis does not seem to be its Polar Axis, nor even its greatest diameter, as in other cases, but a diameter very considerably inclined from the former. No doubt the reason of this apparent Polar anomaly may yet be explained.

Electricity and Galvanism seem to be one, although the method of their production is different. The former may be called mechanical, being generally produced by friction; the latter may be called chemical electricity, being produced by chemical affinities. The poles of both are alike positive and negative. Magnetism is a different manifestation of power, having its poles north and south only. It exists independently of either Mechanics or Chemistry. Chemical Galvanism possesses the singular *peculiarity* that an increase of its powers cannot be got by increasing the dimensions of the cells of the battery, but can be by increasing their number.

The peculiarity of the Magnet is this: When Magnetism passes from one body into another the first is not apparently a loser. With Electricity it is different, for in passing along to a new

object the first seems to become neutral. The Magnet does not point to the Pole star, or to the axial pole of the Earth, but to a point some 20 degrees to the west of it. Further, although at the Equator the magnetic needle lies level, it *dips* downward as we move northward or southward of the Equator. Its variation in relation to the Pole-star so alarmed the sailors during the famous voyage of Columbus that he had great difficulty in reassuring them that they were not sailing out of the old world altogether.* From our Longitude the N. Magnetic Pole *seems* to be situated in the Hudson Bay territory in Lat. 70 N. and Long. 99 W, if we may judge from the pointing of the compass. It was established by Humboldt that the Magnetic Force increased with the increase of Latitude. These circumstances are very remarkable, but all point to the conclusion that the magnetic centre of mundane attraction is not in the sky but apparently embedded in the earth itself.

The science of Electro-Magnetism has made wonderful advances of late years, and we may expect great and important revelations to follow the numerous experiments now making in its relation to the Telegraph, the Telephone, and Light, and to Motive power, and indeed in other relations hitherto undreamed of. The present state of the science is popularly shown in Forbes's "Lectures" † and other works. In one of the most recent we read, ‡ "Electric forces are propagated through the Ether, and there is a very close connection between Elec-

* Washington Irving's "Life of Columbus," vol. i. p. 167 (1880).

† "Electricity," by George Forbes, F.R.S. (Longmans, 1888).

‡ "Electricity," by E. M. Carlbard, p. 290 (Murray, London, 1891).

tricity and Light." Some think they are identical because their velocities are somewhat similar. Faraday indicated his opinion that Heat, Light, Magnetism, and Electricity, the imponderable Natural Forces, were so many manifestations of one and the same force. Of Light we are told by P. J. Bailey that :—

> "Star unto star speaks Light, and world to world
> Repeats the password of the universe."

The Physical Forces have the remarkable characteristic of being both invisible and silent. Gravitation, Heat, Electricity, Magnetism, Galvanism, and the Molecular forces, are all normally so, although some of them—as Heat and Electricity—are, when under certain conditions, the reverse. But their existence and operations in all circumstances can be traced, and even their powers measured. The Correlation of Physical Forces—that is the transmutability of one into another — seems to be established in so far as that any one of them may generally be made to do the work of another. Sir David Brewster wrote that "in employing the etherial medium to explain the Nature of Light, Newton does not suppose with Descartes, Hooke, Huggins and others that light is nothing more than the impressions of those undulations on the retina." He regards Light as composed of particles thrown off from luminous bodies. But that they are really all *identical* does not seem probable. For example, Gravitation and Heat differ from Electricity thus far, that the former seem to pervade the body of every piece of matter, while electric force is generally

found only upon the outside surface of a conductor (Matter), and always manifests itself in two opposites —positive and negative. Again, Gravitation acts in a straight line uniformly and invariably under all circumstances, irrespective of surroundings; while Electricity seems to act divergently, and appears variable under different conditions and surroundings. Further, as already stated, the rays of Heat and Gravitation-force differ in this important respect from each other, that Gravity appears to be in no degree intercepted by a third opaque body, while Heat rays are. Thus, when the Earth is eclipsed our temperature falls quickly, but the attraction of Gravity is not affected in the least, for while the moon is *apparently* intercepting the Sun's rays of both Heat and Gravity, the earth continues attracted by the latter with unimpaired force.

We must admit that we have failed to find any real analogy in the correlation of one physical force with another physical force, to illustrate the relationship or mode of communication of Mind with the living physical body in Man. Even Professor Tyndall, who is eminent alike as a scientific observer and as a philosopher, admits that "the passage from the physics of the brain to the corresponding facts of Consciousness is unthinkable. . . . The chasm between the two classes of phenomena still remains intellectually impassible." The conditions are not commensurate, for we must keep in mind that all these forces of which we have been treating above are physical and arbitrary, as before stated, and therefore their truths are not UNIVERSAL,

but only NATURAL truths; while Mind is a UNIVERSAL fact. With two physical elements it is different, for example, the passage of oxygen and hydrogen into water is visible to the Senses. We have avoided reference to the Vital forces, because they belong to Life, which may be destroyed, but defies definition. Were such examination possible, perhaps a real analogy might be found; but, with two incommensurable quantities before us, further investigation in that direction seems vain. Mr. Clodd writes: "We can assert nothing concerning Life's beginning. We know that it had a beginning, and that it will have an end." Professor Tyndall—and we can have no higher authority—says: "The scientific investigator finds himself overshadowed with awe. . . . It associates him with a power . . . which he can neither analyse nor comprehend. Life and its conditions set forth the operations of an inscrutable power. We know not its origin; we know not its end." Life and the Vital Forces being mortal belong to the *Natural* Sphere.

Four different hypotheses have been proposed to explain the problem of how intercourse of entities so incommensurable as Mind and Body could be accomplished, and to the first and second we have already alluded, viz., the system of "Assistance or Occasional Causes" and that of "Pre-established Harmony." The third is "The Plastic Medium," that is, a medium supposed to be partly Material and partly Spiritual. This idea is to be traced to Plato, but as Hamilton has said: "Between an extended and an unextended substance, there can be no middle existence." The fourth hypothesis is that

of "Physical Influence." "This system is simple, but it affords us no help; . . . if the Soul be unextended it can have no connection by touch with the body, and the physical influence is inconceivable or contradictory." Here we meet a question of the most profound difficulty. If the intellectual Being is possessed of "Thoughts that can wander through Eternity," is this not equivalent to extension in Space? To use the words of a learned authority, "An Atom of Matter is simply a centre of force—a Soul is a centre of power." In short, in the words of Pascal, "Man is to himself the mightiest prodigy of Nature;" but he is unable "to conceive how a body can be united to a Mind; yet this is his proper being." To this Hamilton adds: "A contented ignorance is indeed wiser than a presumptuous knowledge." This difficulty does not apply to the animal Body and its Instinct, for Instinct is not a separate entity, as Mind is, but merely a necessary condition or endowment of the living body. Both Body and Instinct belong only to the NATURAL sphere. We have seen that Instinct and animal-Life, indeed, *are one*, and have no existence apart from each other, whereas Mind and human Life are two separable existences. A new advocate has just appeared claiming to prove that among Animals, Instinct, as distinguished from Intelligence, is non-existent. That, indeed, the intelligence of the higher animals is essentially the same as our own! He does not attempt to show how this theory of reason will apply to the lower species of animals and to insects.*

* "The Intelligence of Animals," by C. W. Purnell, barrister-at-law. Christchurch and Dunedin, New Zealand, 1893.

In relation to the analogous subject of Forces, Herbert Spencer has well said: "How force existing as Motion, Heat, or Light can become a mode of Consciousness: how it is possible for aerial vibrations to generate the sensation we call sound, or for the forces liberated by chemical changes in the brain to give rise to emotions—these are mysteries which it is impossible to fathom." Vibrations and Sound, indeed, belong to the *Natural* Sphere, and are capable of investigation; but the emotions of the Mind (consciousness) carry us into the *Universal* sphere: hence they are Incommensurable.

When the evening twilight sets in, the Mind begins to vacillate, and, the Solar light ceasing, Man's faculty of attention gradually lets go its hold as the eyes are closing. The limbs are prostrated, and the body becomes a kind of vegetable. Shakespere truly wrote:—

> "Sleep, that knits up the ravelled sleave of care,
> The death of each day's life, sore labour's bath." *

And although it may seem apparent that "The sleeping and the dead are but as pictures;" † yet there is this great difference, that the sleeping man still breathes; for, although he seems to have no communication with the external world, his process of nutrition and circulation instinctively and unconsciously continues. In certain cases of trance or syncope, this appears doubtful, but, if the body is placed under water for a short time, death will result.

* "Macbeth," act iii. sc. 2. † Ibid.

Still we cannot say that this condition furnishes us with any analogy to the communication which personally exists during the whole period of life between man's Mind and his Body.

In sleep, the Mind and body seem more or less to have lost their communication, the former may also be in repose, or partially so, dreaming in a kind of mental phantasmagoria, very illogical generally, but with remarkable exceptions, always uncontrolled by the Will, and unconscious of its surroundings. Chaucer calls dreams—

> "But interludes, which fancy makes.
> When monarch Reason sleeps, this mimic wakes,
> Compounds a medley of disjointed things."

> "O sleep thou ape of death!" *

wrote Shakespere, and again of the murdered Duncan—

> "After life's fitful fever he sleeps well."

and elsewhere

> "Thy best of rest is sleep,
> And that thou oft provok'st, yet grossly fear'st
> Thy death, which is no more." †

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* Cymbeline, act ii. sc. 2. † Measure for Measure, act iii. sc. 1.

EIGHTH LECTURE.

JUDGMENT—PHILOSOPHY—THE PHILOSOPHERS AND THEIR SYSTEMS—POSITIVISM.

IT seems an obvious truth, that if in a healthy condition the Mind of Man, acting upon true knowledge, and free of doubt, must pronounce true judgment. Then why, it may be asked, so much difference of opinion in the world? Because men in general *unconsciously* bring preconceived opinions, self-interest, passions, and prejudices to the consideration of almost all subjects, and hence so much inharmonious disputation. This is no mere assumption of our own. Hamilton says that "the evidence of Consciousness is authentic," and that "Philosophy, as it affirms its own possibility, must affirm the veracity of Consciousness." Leibnitz says: "If our internal experience could possibly deceive us, there could no longer be for us any truth of reason." But philosophers, says Hamilton, "have seldom or never taken the facts of Consciousness (Mind)—the whole facts of Consciousness, and nothing but the whole facts of Consciousness; they have either overlooked, or rejected, or interpolated." *

Whatever, therefore, the Mind is truly informed of

* "Lectures," vol. i. pp. 265–7.

through the healthy senses in a NATURAL Truth; and whatever the *truly informed* Mind perceives, altogether apart from empirical sources, in the healthy exercise of Logical reasoning and free of prejudice, must be a UNIVERSAL or spiritual Truth. Such conceptions are necessarily true, and the Mind cannot truly think otherwise, and *must* so decide; for no argument can have any sufficient standpoint other than in the Mind itself. Were this fact realized, perhaps volumes of words might be saved!

This will appear to be dangerously Transcendental doctrine, seeing that the human Mind is obviously far from being perfectly good or wise, but subject to passions, which ever tend to mislead its judgments. Pascal, the Philosopher of Port Royal, held extreme views on this point. But, as we have already said, the Mind is possessed of a marvellous Monitor, called *Conscience*, which acts as a perfectly independent and trusty judge; silent till wrong is done, but sure to speak then with most commanding and unquestioned authority.

We repeat that it would be a complete misunderstanding to suppose that our Test acts directly as a final *judge* in any ethical question. Its office is to *resolve* the subject into its *Natural* and *Universal* elements—if the two are present as they generally are—so freeing the argument of *confusion*. Thus only can it be prepared for ratiocination, examination, and decision—which, in minds devoid of ignorance and prejudice, will be a true decision. If the Mind's decision be unjust, Conscience will always be ready to repeal it. Beyond this, there is no appeal to other Minds. Each one of us is bound to

examine the facts and then to act honestly and consistently upon his own responsibility. "Consistency is a virtue, but" if in the wrong "it may be a vice and a disease." *

It may be said that, given a question in Ethics, any two men might honestly come to different judgments under very similar circumstances. This often is so; but it only shows that within the circumstances *there were some determining differences.* The searcher for Truth is bound to confer with others for full information, and such conferences may result in agreement; but in the end each must be responsible for *his own* conclusions.

The opinions of Spinoza are in general too mystical and profound for our pages; but it is desirable to mark his position in philosophy. Spinoza, says Principal Caird, regarded "the science of Mathematics as affording the purest type of method. . . . Might not the same exactitude, certainty, necessity of sequence be obtained for the truths of Philosophy?" But, "from the very nature of the thing, a purely geometrical method is inadequate to the treatment of philosophical truth. . . . Philosophy must go farther back than either Mathematics or the sciences that treat of outward nature. These sciences . . . . employ categories and forms of thought which they do not investigate, and presuppositions which they do not pretend to do more than verbally define. Geometry may, *in this point of view*, be called a hypothetical science." [But pure *Mental* Geometry is not so. It "goes back to the very Beginning" of existence both of matter

* "Pastime Papers," by Cardinal Manning, p. 14 (Burns & Oats, 1893).

and philosophy, and is independent of both space and time.] "It presupposes the objective existence of space, and employs, without inquiry into its validity, the category of quantity. It begins with certain definitions, *e.g.*, of a point, a line, a surface, without examining into their origin. . . . Philosophy cannot content itself with such a method. . . . It must go back to the very beginning, and, in a sense, create the matter with which it deals. . . . The special sciences may content themselves, each with its own professional view of things, and may relegate to Philosophy the task of explaining and verifying it. A philosophy *which did so would need another philosophy to examine and criticize it.*" *

The starting-point of Spinoza's system is the idea of "SUBSTANCE," which he defines as that which is in itself and is conceived through itself. This Substance he characterizes as infinite, indivisible, unique, free, eternal, as the cause of itself and of all things; "he expressly identifies this Substance with God. In beginning with this idea, Spinoza is attempting to realize his own theory of knowledge; . . . he *begins* with the Universal, not the particular. . . . All finite thought and being therefore rests on the idea of *Infinite Substance.*"

"Spinoza is often greater than his method," and it is sometimes very difficult to reconcile his numerous averments, logically built up as they individually may seem with each other. "In a system in which all things follow from the first principle with the same necessity as the properties of a geometrical figure from its definition, or a logical conclusion from

* "Spinoza," by Principal Caird, pp. 115–116 (Blackwood, 1888).

its premises, individual freedom is, of course, an impossible conception."

As an original and logical thinker Spinoza ranks high, but he appears to have left no disciples who subscribe to his system as such. We have diverged thus far, partly to give our younger readers some idea of it; but to discuss it here would be entirely beyond our province as treating of truths generally, and we only desire to point out that in our Argument in this volume, we have not applied Geometry in treating any *argument* anent philosophical truth or definition. In selecting it as *one* phase of Universal Truths, we use it *only* as an illustration of our meaning of the words *Universal Truths* generally. It possesses, by Spinoza's own admission, "Exactitude, Certainty, and Necessity of Sequence." But he says it *may* be called a hypothetical science in one point of view, namely in that it did not exist before "*Substance.*" This last point *must* be quite true, if, as he says, "Substance is Eternal and *the cause of all things*"—in other words is God.* *Mental* Geometry, however, must have existed *from the first*, although the Natural Sciences may not.

Every true philosophical proposition must rest on some foundation of fact or action, and we can rest with absolute confidence in the truth of Geometry, until some proof be adduced to show that it is untrue, *which has never yet been done in even a single case.* Until then, no question of its being *imperfect* can be raised. Science may be founded upon the facts of experience, but mental Geometry is not a mere Natural Science.

* "Spinoza," by Principal Caird, p. 120.

Even with the guidance of Principal Caird we may not clearly understand this great thinker, but to us it appears that to reject all axiomatic foundations whatever is to arrest philosophic argument altogether. For example, "the objective existence of Space" as a fact needs no inquiry, any more than the existence of "*Substance*" does by Spinoza's idea. To us they *both* seem axiomatically true, although the one—by his idea—contains a *Universal*, while the other is a *Natural* fact.

As to Geometry, Spinoza says that the main objection to its employment in philosophy is that the category on which it is based is inadequate to the treatment of Spiritual things, and he truly adds that inevitable confusion and error arise from applying to one order of things conceptions which are strictly applicable only to another and lower order of things. We think this exactly explains the difference between his idea of Geometry and ours. The Geometry he speaks of is a *Natural* Science, having relations to Space (Extension), but, as already stated, that which we use is a *purely Mental* or Spiritual Geometry, and being *Universal* has no relation to either space or time, nor to anything Material, and certainly is not a "hypothetical science." It existed from the beginning of time, and nothing could exist earlier except of course "Infinite Substance" (*i.e.*, God, by his idea).

Max Müller says that Spinoza means "that the higher religion consists in the intellectual love of God . . . the highest knowledge which can only be the work of our own hands." Professor Robertson Smith, referring to the altar service of Leviticus, says: "In the old religion when all worship took the

form of Sacrifice,"* while Professor J. A. Froude says: "Sacrifice is the first element of religion, and resolves itself into the 'love of God.' Let the thought of Self intrude, let the Painter but pause to consider how much reward his work will bring to him, . . . and the cunning will forsake his hand and the power of genius will be gone. . . . Excellence is proportioned . . . to the oblivion of self." To Spinoza no conception of the Deity seemed adequate. "He saw that the infinite could not be limited: that Divinity must be all or nothing." As to the philosophical theory of Spinoza, it has failed to command any general acceptance, or to found a distinct school of thought.

The importance of Conscience can scarcely be over-estimated. Rousseau says it is the most enlightened of all philosophers; and another French writer that Conscience is a sacred sanctuary where God alone has the right to enter as judge. Neglects of its monitions may be forgotten, but, like Banquo's ghost, they will at some most inopportune moment arise; and, like Macbeth, we shall find we have trusted to "juggling fiends"—

> "That keep the word of promise to the ear,
> And break it to our hope." †

There is an intimate mutual relationship between Freedom of the Will and the Conscience, although these are entirely independent and distinct in their action. *It is evident that if we possess not Freedom of Will, there could be no field for the action of*

* "Religion of the Semites," p. 199 (A. and C. Black, Edinburgh, 1889).
† "Macbeth," act. v. sc. 7.

Conscience at all. Materialists "assert that there is nothing more in the Universe than a series of Physical antecedents and consequents, evolving out of one another through all Time. If, therefore, you insist that the Will has no real existence, but is merely the mental manifestation or shadow of molecular vibrations in the brain, . . . you should deny *real* existence to our other conscious mental attributes. . . . On the same grounds as you deny the real existence of the Will, I can deny the real existence of the Intellect," * and we may add, of Conscience. "A sound Conscience," says the Latin proverb, "is a brazen wall."

No doubt Conscience is not omniscient, and sometimes may judge under ignorance, and be misled by error, nay, even in some minds, become muffled by long-continued rebellion against its dictates; although not so long as the Mind itself is in a healthy condition. But Conscience is ever faithful—no bribe can purchase either its leniency or its silence.

> "Our inward Monitress to guide or warn,
> If listen'd to, but, if repelled with scorn,
> At length as dire Remorse she reappears." †

It seems to act as the Mind's assessor, the more clearly when without training—ever upholding Truth first, and then the Beautiful, but never interfering with the freedom of the Will (*i.e.*, the Mind).

The independent judgment of each individual Mind must, therefore, regulate its own lawful actings, and, as we have shown, is without appeal to other

* "Civilization and Progress," by John Beattie Crozier, p. 201 (Longmans and Co., 1888).

† Coleridge's poem *Remorse*.

minds. Descartes held that whatever was clearly and distinctly thought must be true. The Sciences, he held, are but the intelligence of Man—all the details of knowledge having no value save as they strengthen the Understanding; and the end of all study ought to be to guide the Mind to form true judgments on everything that may be presented to it. He further believed that, "through the truthfulness of the Author of all Truth, man derives a guarantee for his perceptions, in so far as these are clear and distinct." Kant says, "Reason (Mind) is spontaneously practical, and gives that Universal law to Man which is called the 'Moral Law.'" * Sir William Hamilton's conviction was that "the philosophy of Common Sense represents the highest reaches of human Speculation." However, Valaincourt, a French writer, tells us that "Common Sense is not a common thing."

It has been asked, pertinently enough, "What necessary connection is there between Sin and the Moral Law, and what is Sin?" To those who admit the divine obligations of the Moral Law, the answer seems evident. Sin is opposition to the Will of the Supreme, and to act against the dictates of the Moral Law is Sin, if this Law is the declared expression of his Will.

The original meaning of Philosophy was "the love or search after knowledge." Auguste Comte defines it as "the explanation of the phenomena of the Universe." Certainly this restricts it to a limited portion of knowledge, but Professor Ferrier more truly describes it as "not Truth, but reasoned

* Immanuel Kant's "Metaphysics of Ethics" (1069), p. 91.

Truth." Dr. Reville, an eminent French scholar, defines it thus: "It is the free search after higher Truth in the world and in Man, on the basis of acquired knowledge and observation." Philosophy, as sometimes taught, practically ignores all the more obvious avenues of knowledge, such as one's own perceptions, and such especially as the Senses furnish, and begins its search even of the external world in the Mind itself.

Dr. Johnson kicked his foot against a stone, and so, without further reasoning on the subject, decided that Matter truly existed. Bishop Berkeley (1684) assures us that the Stones and the World itself are not real substances, but merely ideas of the Mind; while some learned writers proceed to reason us into the belief of their existence as only "Permanent Possibilities of Sensation." This they do by voluminous and profound trains of arguments—certainly all needed, to give the reader a glimpse of the definite meaning of these words. Ordinary readers, who do not see the difficulty involved in the matter, will, we fear, be reminded of Shakespere's words. They seem to

"Climb o'er the house to unlock the little gate;" *

and such ill-fitting varieties of theory will perhaps recall Dean Swift's account of the strictly scientific tailors of Laputa. Their fit, though not good, was held quite satisfactory, as being scientifically arrived at.

Philosophy and Science are generally treated in some respects as opposites, which however they are not. Yet "there is no necessary relation between

* "Love's Labour's Lost," act. i. sc. 1.

erudition in one department of Science and soundness of judgment in another." * Science is rather like the foliage and fruit of the tree of Knowledge, while philosophy may represent its trunk and underground roots. Tyndall expresses this very clearly :— "The roots of phenomena are embedded in a region beyond the reach of the senses, and less than the root of the matter will never satisfy the Scientific Mind. We find . . . the greatest minds constantly yearning to break the bounds of the senses, and to trace phenomena to their subsensible foundation." † Professor Huxley, if we understand him aright, seems to claim for Science the foremost place in the search for Truth, and that a philosopher must *first* be a Scientist. This definition, rigidly held, would, we fear, exclude some eminent thinkers, and it is remarkable that he over modestly disclaims for himself a knowledge of certain sciences. Philosophy includes Science, but Science does not always include Philosophy.

One of the newest definitions of Philosophy we have seen is this.‡ Philosophy professes to seek and to find the *principle of Unity* which underlies all the manifold particular truths of the separate sciences, and in reference to which they can be brought together, and organised as a "System of Knowledge." If this includes all sciences without exception, it seems excellent, but unfortunately among the throng of eminent searchers no one as

* "Darwin and After Darwin," by G. J. Romanes, M.A., p. 11 (Longmans, London, 1892).

† "Lectures on Light," p. 208 (Longmans, 1885).

‡ Professor Edward Caird's preface to "Comte's Social Philosophy" (1885).

yet has succeeded in finding this principle of *Unity*; nor does it appear that agreement is yet arrived at, either as to the method of search or as to the constitution of its different elements. Perhaps this principle of Unity is as difficult to find as the key-note of "the Music of the Spheres," * or as to point to "Where the Night parts with the rosy Morn," † or as to discover the "Golden Key that opes the palace of Eternity" ‡—in short, unattainable.

Philosophic study seems to have always had a peculiar charm for the most intellectual men of the age, from Socrates (B.C. 469) and all the philosophers downwards to our era. They appear to have assumed a technical language, and stand upon a higher platform than other men—even above the devotees of Science and Literature. As with the great poets, "their souls have been like stars, and dwelt apart," not only from common men, but even from each other. It will, we think, be admitted that almost without exception they have been men of the highest character for integrity, and, in the words of Professor Caird, "possessed of an unmistakable instinct for Truth."

After the Middle Ages had passed, Bacon (A.D. 1561) and Descartes (1596) led the way to a freer spirit of investigation; and at intervals there have followed, amongst others, Spinoza (1632), an independent Jew, a pure Monotheist; Locke (1632), the champion of Empirical Science; and then Leibnitz (1646), the greatest of German Mathematicians, teaching doctrines directly opposed. Leibnitz's desire was to penetrate on the one side to the very root and origin

* "Pericles," act v. sc. 1. † Blyth's "Poems." ‡ Milton's "Comus."

of existing ideas, and on the other to apply them to practical ends; he made many attempts, but not always successfully.* Berkeley (1684) and Hume (1711) followed with their idealistic theories, having some points of resemblance, but of a directly opposite tendency. Reid (1710) in Scotland and Kant (1724) in Prussia afterwards arose to refute the theories of both; and the latter gave in his "Critick of Pure Reason" a new impulse to pure philosophical inquiry. His successor, Fichte (1762), changed his master's severely independent argument to an Ideal Transcendentalism; and amongst a host of lesser lights, who quickly followed, the usual contradictions abounded. Of these the most eminent were Schelling (1775) and Hegel (1770), who formed the famous School of Identity (Knowing and Being); followed by Cousin (1792), the brilliant exponent. His contemporary, Comte (1795), an original genius, founded the well-known School of "Positivism," having many admirers, but few, if any, acknowledged disciples of note. In our country an eminent contemporary of these was Sir Wm. Hamilton (1788), whose criticism on the Kantian Philosophy, and that of other well-known writers, gave a considerable impetus to such studies, at least in this country. Later still, we have had John Stuart Mill (b. 1806), an eminent thinker, questionably great in Logic and somewhat high-handed criticism—especially of Hamilton;† G. H. Lewes, a clever writer; and Herbert Spencer, so well known

* "Leibnitz," by John Theodore Merz, Edited by Professor Knight (Blackwood, 1884).

† J. S. Mill's "Examination of Sir Wm. Hamilton's Philosophy." (1865).

as an original exponent of Social Science, and eminent in the philosophy of Evolution; besides several other living philosophers of the highest eminence.

Notwithstanding this free and wide divergence of opinions amongst philosophers, and the liberality of the so-called Republic of Letters, "literary judgments," says a recent critic, "tend to be arbitrary, and, in particular, to be conservative. . . . The human mind is as slow to accept new Art as to accept new Truths. . . . Goldsmith protested that there never was an unbeaten path trodden by the Poet that the Critic did not endeavour to reclaim him by calling his attempt innovation." * "A great Scientific theory," said Professor Tyndall,† "has never been accepted without opposition. The theory of gravitation, the theory of undulation, the theory of evolution, the dynamic theory of heat—all had to push their way through conflict to victory," and so it will continue to be with new theories great or small. "Such must always be the course of things as long as men are endowed with different degrees of insight."

We have not here mentioned Sir Isaac Newton (d. 1727), a philosopher of the highest order, because he preferred to be ranked as an astronomer. Indeed, we think it may be said that Newton was the greatest genius in Mathematical and Astronomical Science the world has produced, and in the same sense supreme, as Shakespere is in Science of Literature. We omit one or two other names for

* "Essays Toward a Critical Method," by J. M. Robertson, p. 65 (Unwin, 1889).

† New Fragments, p. 198 (Longmans and Co., 1892).

somewhat corresponding reasons, such as Huxley and Tyndall and Thomson and others who fortunately remain with us.

Fashion seems to reign in Philosophy as elsewhere. Each of the great writers has had his followers, but which of them can claim an important disciple who will subscribe to his views? Of recent years perhaps the most popular in this country were Hegel, a charming idealist, and Comte; but both seem to be declining in favour. Comte was not eminent in Science, and his claim to be a great philosopher is very questionable. There is no doubt as to his qualification as a thinker, and generally as a man of original genius, though somewhat prophetic and extreme. He has been unusually fortunate in his English commentators—J. S. Mill, G. H. Lewes, and Professor Edward Caird, all of whom, however, differ from many of his doctrines; but they have done much to shield his writings from unfriendly criticism and misconception, to which they certainly lie very open. Lewes even describes him as one of "the greatest thinkers of modern times."* He is by no means consistent with himself, but this is not surprising, for he was a philosopher at sixteen, and, it is said, wrote several hundred pages of one of his works in three months! His knowledge of Empirical Truths generally was considerable, and his style somewhat popular.

Here are some of his sayings: "The individual man is a mere abstraction, and there is nothing real but *Humanity*. . . . The God who made all things work together for good to his creatures has dis-

* Comte's "Philosophy of the Sciences," by G. H. Lewes, 1853.

appeared with the fictions of childhood. But his place has been taken by '*Humanity*,' conceived as a great providential existence which sustains and controls the life of the individual man, and in which he finds a sufficient object for all his devotions." *

Comte had the advantage of following many greater philosophers than himself. "Has not Plato bequeathed to us idealism; Descartes, the autonomy of the mind; Spinoza, anti-dualism; Leibnitz, the idea of substantive force; Kant, that of the sovereignty of duty in life? Each system of Philosophy has its day. It appears; it puts itself forward; then it falls to pieces and gives place to another. . . . The really powerful systems do not disappear without leaving . . . some elements which become henceforth a part of the general inheritance," † as in the case of Francis Bacon, and several other eminent thinkers.

Professor Huxley, a far greater than Comte, does not believe that Positivism will succeed Christianity. He says: "The incongruous mixture of bad science, . . . the new anthropolatry known as Positivism will not climb into the vacant shrine. But when the Positivist asks me to worship 'Humanity'—that is to say, to adore the generalized conception of men as they ever have been and probably ever will be—I must reply that I would just as soon bow down and worship the generalized conception of a wilderness of apes." ‡

Comte writes of "the provisional *régime* which

* "Social Philosophy of Comte," by Prof. Edward Caird, 1885.

† Reville's "History of Religion," p. 190.

‡ Professor Huxley in *Nineteenth Century*, February, 1889.

ends in our day;" for like some other writers of the French revolutionary period, he assumed that the world had now reached a grand new era of "Sweetness and Light," as "sweet and musical as bright Apollo's lute," * the very Millennium of Humanity.

Comte ignored Logic; the main feature of his Philosophy of Positivism is this: He threw aside altogether the Absolute and Infinite as being unknowable, and limited his philosophical research to the merely Empirical phenomena. Surely as well might he have thrown aside the whole Material World at once, on the ground that matter itself is unknowable. He ignored UNIVERSAL or spiritual Truths, and so nothing higher was left for his system than NATURAL Truths, which he based upon the Natural Sciences, including pure Geometry as *merely* one of them. In limiting Philosophy to so very narrow a field, did he not forget the very meaning of the word? The Absolute and the Infinite—Space and Time—the Past and the Future, may all be beyond human *comprehension*, but the Mind demands to look into them, and can certainly conceive of their existence—it may be with reverence and awe, but conceive of them it must. "In the nature of Man, as an intelligent, self-conscious being, there is that which *forces* him to rise above what is material and finite, and to find rest nowhere short of an Infinite, all-comprehending Mind." †

Professor Edward Caird acknowledges that "Comte's view of the limits of knowledge cannot be

* "Love's Labour's Lost," act iv. sc. 3.

† Principal Caird's "Philosophy of Religion," p. 86.

maintained except on principles which would be fatal to the existence of knowledge altogether."* Farther: "Can men institute a real providence for themselves in all departments—Moral, Intellectual, and Material?" Comte answers "Yes!" Lewes writes of Comte's views of Life thus: "What Life is we know not—cannot know." He objects, however, to your "calling it a spirit, *as if you knew!*"†

J. Stuart Mill also objects to Comte's rejection of Metaphysics, and to other points of his Philosophy. Although denouncing Metaphysics and Theology, Comte claims to be a religious teacher, and tried to establish a new Theology of his own, "more in accordance with the advanced views of the age," and in these views, perhaps, has a few disciples at the present day. "But whatever may be said of Comte's Philosophy as a whole, he possessed that unmistakable instinct for Truth which renders even the errors and inconsistencies of men of genius more *instructive* than the unexceptionable reasonings of many judicious persons who follow the beaten track of thought, and therefore need no repentance."‡

Such was the eulogy of a learned admirer, although not a disciple; but from a letter in *The Athenæum*§ by Professor Baynes we learn that an even greater critic held a very different opinion. Addressing Comte's friend, Lewes, one day, Carlyle said: "I looked into Comte some years ago, and soon found he was one of those creatures that bind the Universe up into bundles and set them all in a row like stooks

* "Philosophy of Comte," p. 164.

† Lewes, "Comte's Philosophy of the Sciences," p. 215.

‡ Professor Edward Caird's "Philosophy of Comte," p. 28.

§ April, 1887.

in a field—one of those fellows who go up in a balloon with a lantern to examine the stars. I was soon done with him." Severe certainly; but allowance will be made for the great thinker's peculiar style.

The originality of Comte's theory, of which he forgets to give proofs, is, we think, very subject to question. It contains some resemblance to Chinese ideas of religion. The Chinese worship Humanity in the past; Comte inverts this into a worship of future Humanity. Somewhat similar in form, though much more unwarranted and extreme opinions, were published by Holbach, one of the semi-atheistic apostles of the French Encyclopædist School in which, however, Comte must not be classed. Holbach deified Nature as self-existent, producing monsters of indescribable forms, without design, the progeny of mere Chance, a position which no later Philosopher of any eminence has taken up. Diderot appears to have countenanced Holbach's book,* which Voltaire did not.

Comte was no atheist, for he recognized some Great Original Unknown God; but he was an enthusiastic admirer of Diderot, whom he called the greatest genius of the eighteenth century—a judgment certainly extravagant. The reader will be reminded of an almost identical eulogium of Comte by G. H. Lewes, equally extravagant. Carlyle has greatly modified these opinions, and has perhaps rendered a service to Truth in doing so. Mr. John Morley † does Diderot full justice as a *littérateur*, critic, and reformer; but as a philosopher his reputation does not by any means stand high.

* The System of Nature," 1770. † "Diderot" (Macmillan, 1886).

NINTH LECTURE.

BEGINNING OF CREATION—ORIGIN OF PLANETS—THE ORIGIN OF LIFE—PROTOPLASM—COMPETING THEORIES—FORCES OF NATURE—ETHER—MONISM.

PERHAPS no controversies have been more widely maintained than those which relate to the Creation—first, of the Material World; second, of Life; and third, of Mind. Concerning the creation of Matter, Reason knows nothing whatever. Of our Solar System, three of perhaps the most eminent men of their day have, in succession, offered what may be called Evolution theories of Creation—Kant, Laplace, and Sir William Thomson —besides others of lesser note; but none of them begins at the beginning! Kant (1724) commenced by *assuming* mere Vapour, but could not advance one step towards the Evolution of a Sun, without further assuming Motion and Gravitation. In this, however, he was very much imitating Democritus (450 B.C.), the author of the old Atomic Theory, which claimed to account for the whole system of Nature by assuming an infinite multitude of Atoms, having a primary motion. Gravitation was discovered by Sir Isaac Newton twenty centuries later, which Kant of course included.

Professor Huxley says "the theological and

mechanical views of Nature are not necessarily mutually extrusive. On the contrary, the more purely mechanist the speculator is, the more firmly does he assume a primordial molecular arrangement of which all the phenomena of the Universe are the consequence."

Laplace (1749), the great French astronomer, showed the mathematical impossibility of Kant's Sun being globular. He then began anew by assuming a Globular Sun "ready made," * and evolved Planets out of gaseous matter, thrown off by centrifugal motion from the *Central* Sun; and Herbert Spencer seems to adopt the same view. † But the like mathematical impossibility applies to this idea as to that of Kant, namely, that such Planets, being formed of plastic matter, could *not* be globular, but must be convex-lens or wheel-shaped. To remove this objection, a modern mathematician proposed to begin with a chaos of stones or solid matter, from which (and of course assuming Motion and Gravitation) he evolved a central Sun such as ours is.

It is difficult to see how stones or any other solid matter could remain solid during the formation of a sun. The rush of such solids to a central focus by the force of Gravitation would, we presume, evolve heat so intense that any matter we know of would become plastic and molten in the act, so forming by its axial revolutions not a globular, but a more or less oblate Spheroid, as in other cases.

These theories—especially that of Laplace—were received with some favour, because the motions of

* "Agnosticism," by Dr. Momerie. † "First Principles," chap. ix.

our Planets and the planes of their several orbits, although not quite in accord with such an idea, are not very different from those which a similar mode of evolution would naturally produce. Indeed Geikie says, "The present condition of our Earth is very much what, according to the Nebular Hypothesis or theory, it might be expected to be." *

Laplace suggested that "the whole mass of Matter out of which the solar system was formed was one immense disc, extending beyond the path of the remotest planet now known, and *rotating as one gigantic whole.* . . . The ring would gradually shrink as its heat was radiated into space, until the outer parts, *retaining their original velocity*, could no longer cohere, but would be left outside in the form of a gigantic ring. This ring, as it further shrank (along its whole length now) would dissolve into fragments, and these would eventually coalesce into a single planet — the outermost. Then another would form in the same way, and another, and yet another, until at last there would be left in the middle that great mass that was afterwards to govern that family of worlds. Each planet, at its beginning being like the original gaseous disc, would go through a similar process of contraction, and form subsidiary moons." †

Mr. Proctor goes on to say—"Laplace's theory, if we grant its initial assumption, accounts fairly for all the features of the solar system, except the singular distribution of the planets into families.

* Archibald Geikie's "Class Book of Geology," 1886, p. 301.

† "Other Suns than Ours," pp. 21-2 (London, 1887).

. . . But," he adds, "unfortunately the initial assumption on which the whole theory depends is utterly impossible. . . . Imagine a disc-shaped region of space, occupied by a vaporous mass of some kind many thousands of times more tenuous than the air we breathe. It is such a disc that we have to imagine according to Laplace's theory, rotating as a single mass." Seeing that the immense disc of vapour was originally "rotating as one gigantic whole," we think that all the planets formed out of it would by Inertia *continue* their orbital rotation round the sun at the former velocities of their particles respectively.

Curiously enough, in the preceding page Mr. Proctor refers to the conclusion of Clerk Maxwell and others, that the rings of Saturn are not solid, as hitherto supposed, but "rings consisting of myriads of tiny satellites, like sand on the sea-shore for multitude." Here we have, not the same, but, we think, an analogous case. These revolving rings of Saturn are now understood to be, not one solid body, but a congregation of minute particles, *each* revolving independently, but in harmony with all the other particles so as to appear one ring, and serve all the purposes of a solid ring, perhaps more perfectly. In like manner, the atoms or particles of the original gas or vapour might, we imagine, *continue* to revolve *as one disc mass* at their original velocities without any need of continuous impetus from the central portion or body, but simply by the laws of Gravitation and Inertia, which they *already* possessed.

Mr. Proctor refers to the singular distribution of the planets into families, and points out the curious

analogy which obtains between the Sun and his more immediate attendants, compared with Saturn and the various bodies which revolve around him. The resemblance is certainly remarkable. It seems evident that the distribution of the Planets has not been by chance, seeing that there respective distances from the Sun, and variety of their orbit planes provide against collision. A somewhat similar variety appears in their respective densities, that of Mercury being 1·24, the Earth being 1, while that of Saturn is only 0·12. The times of their revolution have relation to their respective distances. Chance has no place in our System. Sir John Herschel tells us that the resemblance among our Planets is that of a true family likeness; "they are bound up in one chain, . . . which extends from the centre to the farthest limits of that great system." Nor is this all. In our system the movements of the several planetary bodies are nearly in the same plane, and all are in one direction; but were even one of them reversed, such as Jupiter, Sir Robert Ball tells us that "our expectations of the permanence of the system might vanish." "The motion of the Sun on its axis, and the motions of the planets round the Sun, and the Satellites around their primaries, and the motions of all on their axes, are in one direction from west to east." These have not been left to accident. "Laplace estimates the chances against as four millions of millions to one"!

The grand Nebular Theory of Creation so eloquently propounded by Laplace has held the field amongst the savants ever since his day. But it

seems now to be endangered by a trio of formidable rivals, which of recent years have come to the front. These are—the Vortex Theory, which it is understood has been reconstructed by three of our most eminent mathematicians; then the Ascending-Meteoric Theory of Mr. Norman Lockyer; and third, the Descending-Meteoric, or Eruption Theory, of Mr. Proctor.

The Vortex Theory is old in *name*, the term having been used by Democritus, and also in relation to Descartes' theory of the rotation of the planets; but his theory has since been shown to be unsatisfactory.

We shall best describe its new position by quoting Mr. S. Laing's account of it. He says: "An attempt has recently been made, based on abstruse mathematical calculations, to carry our knowledge of the constitution of Matter one step farther back, and identify atoms with ether. This is attempted by the Vortex theory of Helmholtz, Sir William Thomson, and Professor Tait. . . . The blowing of soap-bubbles gives the best clue to the movements of waves of light, and through them to the dimension of molecules and atoms. . . . In the case of the Vortex theory, the idea is given by the rings of smoke with which certain adroit smokers amuse themselves, by puffing into the air. These rings float for a considerable time, retaining their circular form, and showing their elasticity by oscillating about it and returning to it if their form is altered; and by rebounding and reverberating energetically, just as two solid elastic bodies would do, if two rings come into collision. This persistence of form they

owe to the fact that their particles are revolving in small circles at right angles to the axis or circumference of the larger circle which forms the ring-motion, thus giving them stability, very much as in the familiar instance of the bicycle. They burst at last, because they are formed and rotate in the air, which is a resisting medium; but . . . in a perfect fluid free from friction these vortex-rings would be indivisible and indestructible; in other words, they would be atoms."

"The Vortex Theory assumes, therefore, that the universe consists of one uniform primary substance, a fluid which fills all space, and that what we call "Matter" consists of portions of this fluid which have become animated with vortex motion. The innumerable atoms which form molecules, and through molecules all the diversified forms of Matter of the material universe, are therefore simply so many vortex-rings, each perfectly limited, distinct, and indestructible, both as to its form, mass, and mode of motion."

"The theory is a plausible one, and the reputation of its authors must command for it respectful consideration. . . . It is based solely on mathematical theory. . . . No one has proved the existence of such a medium, or of such vortex-rings. . . . Moreover, the theory is open to some obvious objections." "How can aggregations of imponderable matter acquire weight, and become subject to the law of gravity, which, . . . as we have seen, is one of the essential and permanent qualities of atoms? . . . And if it had weight, however small, how could the enormous mass of Ether filling

all space produce no perceptible effect?" Again, "How could the motions requisite to form the vortex-rings be impressed on them? . . . Energy can no more be created out of nothing than Matter, by any process known in nature." *

Is it conceivable that any Matter can be imponderable? But a great difficulty which this theory has to contend with is the fact that no such vortex-rings can be shown by any experiment, because we have no access to any gas, having the properties and condition of the *free* Ether of space, which is unconfined and boundless. This theory must be proved by purely mathematical calculations.

The other two theories to which we have referred are those of Mr. Lockyer and of Mr. Proctor. The first is based upon examination of the orbs and meteors of the system, by means of that wonderful modern instrument, the Spectroscope—the greatest revealer of the secrets of distant worlds. It tells us almost all we need to determine their constituents chemically, and the nature and conditions of their light, even distinguishing primary from reflected rays. The results ascertained are that all the Planets, and the Sun, are of the same or similar material, and also that their light is similar in kind.

Dr. Huggins says, "The Spectroscope affords a separating power far beyond that of any telescope. It has not simply added to the list of the known binary stars, but has given us for the first time a knowledge of a new class of stellar systems, in which the components are revolving with velocities greatly

* "A Modern Zoroastrian," by S. Laing, pp. 82–85 (London, 1887).

exceeding the planetary velocities of our system." * But what is still more wonderful, it is said to reveal the speed or velocity at which planetary bodies are travelling! This will give an immense impulse to future Astronomical observations.

The modern telescopes have revealed to us the fact that both inter-planetary and inter-stellar space are evidently crowded with meteors and shooting stars. Of such, there are daily seen passing our globe some twenty millions, and their total must be thousands of millions—simply innumerable; and most of them of extremely diminutive size. They seem to travel in streams or zones round the Sun, and are sometimes connected with Comets. When the Earth intersects such streams we have a grand display, as occasionally witnessed on November nights. They must frequently fall into the planets, but being of trifling size and weight do not appear to add to the weight of our globe in any appreciable degree. They are composed of minerals, metals, and hydrogen or other gas, in a state of semi-fusion, judging from their spectra, and from the examination of some that have fallen on the Earth. Mr. Lockyer has lately written "that the spectra of nebulæ, auroras, and certain stars, are closely related to the spectra of Comets;" and again, "It is now universally agreed that Comets are swarms of meteorites." †

Mr. Norman Lockyer's theory is based upon the hypothesis that the solar system is built up of such insignificant meteorites, and that they collide and aggregate into larger bodies, eventually forming Sun,

* Opening Address, British Association, 1891.

† *Nature*, October, 1890, p. 898.

Planets, and Satellites. This eminent authority has proved by his Spectroscope that the spectra of the light emitted by Suns, Stars, Meteors, and Comets is the same as given by actual Meteors which have fallen. This is a fact of immense importance, but it does not definitely prove that the meteors make worlds, because it equally supports the converse idea that Meteors are the children of suns and comets. The theory, however, will perhaps account for the intense heat of the sun and even that of the planets, because, travelling as they do, these meteors by collision would produce intense heat, depending upon their velocities. In a paper read before the Royal Society, Mr. Lockyer said that "All self-luminous bodies in the celestial spaces are composed of Meteorites, or masses of vapour produced by heat brought about by condensation of meteor-swarms due to gravity."

Mr. Proctor's theory is the converse of this.

In the year 1871 Professor Young, of Princeton, N.J., observed a tremendous solar eruption, which appeared like filaments of glowing hydrogen, each many thousands of miles in length. These seemed to be ejected from the sun at a great velocity, till they reach a height of 210,000 miles, where, losing their lustre, they faded from view. Subsequent observations have detected numerous similar eruptions, proving that the sun has the power of ejecting such volcanic matter, and at such velocities as probably suffice to preclude its return to that body.

Mr. Proctor tells us that all the planets were originally molten matter; slowly cooling down they

become solid, at least in their outer crusts, but remaining luminous; their third stage being that of our Earth as at present. Judging from the increase of heat which we find in the deepest mines, it is shown by calculation that our globe is still molten matter at a depth of about thirty miles, which appears to corroborate his opinion.

In a communication to the Royal Academy of Science, Brussels, "on the thickness of the Earth's crust," M. E. Ronkar concluded, from an extended investigation deduced from diurnal nutation, that this thickness does not exceed one hundredth of the Earth's radius—that is about forty miles. He also treated of "the mutual impulse between the crust and the interior of the earth on account of internal friction."

Mr. Proctor assumes that all the Planets, when in their early or sun-state of being, would in like manner throw out similar volcanic-like eruptions, with force sufficient to overcome their respective powers of Gravitation attraction. All such fiery matter would be meteoric, and thus space would be crowded, as we see it is still, with immense multitudes of such luminous meteors, or shooting stars.

Nor is this all. The fixed stars are all suns, and, judging by their amount of light, they are of vast size. One of them, Sirius, is estimated to be a thousand times larger than our sun, and its heat is found by Mr. Lockyer to be so transcendent that its spectra cannot be matched by those of electricity, nor any other heat known to us. Mr. Proctor assumes that these fixed stars or suns frequently throw off immense quantities of similar eruptive

matter, necessarily as prodigious velocities, some of which may possibly reach our solar space, and be eventually absorbed into the orbs of our system. Indeed, he adds, "it becomes clear that no small portion of the present mass of each planet must have been derived from the process of meteoric aggregation."

Several years ago, much speculation prevailed as to the Sun's means of maintaining its heat. May not the vast number of meteors falling into it to a considerable extent supply the explanation? Regarding our Globe, there has probably been much exaggeration in the reports of the number of Meteoric "falling stars" which have descended upon it. On examination they appear to be fragments of a large Meteor which probably took fire on entering our atmosphere, and exploded into a multitude of small stones. Of course the number falling into the Sun may be immensely greater, not merely in proportion to its great diameter, but much more in consequence of its enormous power of attraction. But here we must not attempt any further details. Enough has been said to give some slight idea of Mr. Proctor's theory.* He could not give us visible proofs of its truth, but, if he is correct in his initial facts and suppositions, his treatment of them, which is purely mathematical, should give true results.

Such are the four theories of the creation of our Solar System now before us—Laplace's, the Vortex Theory, Mr. Norman Lockyer's, and Mr. Proctor's. There is yet one other versatile thinker on such sub-

* "Other Suns than Ours."

jects, to wit, Mr. Samuel Laing, whose words we have freely used. He propounds a new theory, viz., that of the "principle of Polarity," which he applies universally to Matter, organic and inorganic, to Life and to Mind alike.* According to Helmholtz and Soule, "the Sun and his heat originated in a collision of smaller bodies, generating, as they must do, an exact equivalent of heat for the motion lost in collision." Sir William Thomson says, "Meteoric action . . . is . . . not only proved to exist as a cause of solar heat, but it is the only one of all conceivable causes which we know to exist from independent evidence." More recently there is still another Nebular theory held by Sir Robert S. Ball. He says: "We do not inquire how the original Nebula came into being. . . . It would be infinitely improbable that it should not have had some rotation." It began to rotate more and more rapidly. At length the centrifugal force detaches a fragment of the Nebula, and here a planet is formed. Still the central mass condenses and spins more rapidly, until another rupture again takes place, and a second planet is produced. One such fragment has consolidated into our earth.† Sir Isaac Newton said that "the motions which the planets now have could not spring from any natural cause alone, but were impressed by an intelligent Agent. . . . not blind and fortuitous, but very well skilled in mechanics and geology."

Inertia and Gravitation seem to have an intimate relation, or rather a balancing opposition, to each

* "A Modern Zoroastrian."

† "In Starry Realms," p. 348, by Sir Robert Ball, D.Sc., LL.D., F.R.S. (London, Isbister and Co., 1892).

other. Gravitation, instead of being the sole sustainer of the Solar System, could by itself only destroy it, by drawing all other bodies into the Sun. Inertia would by itself carry off all such bodies in a straight line into absolute space. But by their joint, or counteracting, power the planets are maintained in their several orbits round the Sun as a centre, or rather each round its respective Focus, their orbits being not circles, but somewhat Elliptical.

These orbits are not absolutely uniform; like Nature's motions, they generally vary a little from strictly geometrical figures, but within fixed limits. These variations may be compared somewhat to the vibrations of a fine balance, and are best described as mere perturbations. Belonging to the *Natural* sphere, such variations are not possessed of continuity, and hence are not cumulative, so not affecting the question of the permanency of the planetary system. They are caused by attraction of the moon and planets, more especially Venus and Jupiter. Sir Robert Ball has shown "that the heat received on the whole earth from vernal to autumnal equinox equals that received on the whole earth from autumnal to vernal equinox. He has farther found that "of the total amount of heat received from the Sun on a hemisphere of the earth in the course of a year, 63 per cent. is received during the Summer, and 37 per cent. is received during the Winter."

"We have good grounds for believing that . . . our solar system has been substantially the same as at present throughout the range of time indicated by the ordinary chronology of geology. On the other hand no one supposes that the configurations of our system

are absolutely eternal. Lagrange's theorems on the stability of the solar system go not so far as that." *

"It was at a comparatively late stage in its history that Greek thought came to the conception of a beginning of all things. The conception was first formulated by Anaximander in the sixth century, B.C. The earlier conception was that of a chaos, out of which gods and all things proceeded. The conception of Mind was not yet evolved. When it was evolved, two lines of thought began to diverge. The one . . . conceived of both reason and force as inherent in Matter; it is the theory which is known as *Monism*. The other conceived of reason and force as external to Matter; it is known as *Dualism*. These two theories run through all subsequent Greek philosophy." The chief philosophical expression of Monism was Stoicism; that of Dualism was Platonism. †

According to the Platonists, "God had created Matter. He was not merely the Architect of the universe, but its Source." Theirs was apparently the *second* attempt to account for the original dust or matter of which the heavens and the earth consisted. Some very ancient myths professed to do so, but always, we think, out of some already existing chaos, creature, or thing, such as the body of a woman, whose several parts became Earth, Water, Sky, Dawn, &c. Or by the gods, whether spiritual only, or of composite material forms, but never by One supreme God. The *first* to do so was the writer of

* "The Cause of an Ice Age" (Kegan, Paul, and Co., 1891).

† "Influence of Greek Ideas," by Edwin Hatch, D.D., p. 175 (Williams and Norgate, 1890).

Genesis, who stated as distinctly as did the Platonists that "In the Beginning God Created the heavens and the Earth." We presume we may assume that the writer dates long before Plato.

Thus have we considered the question of the beginning of our Solar System. The beginning of Animal Life we cannot discuss. It is beyond our mental grasp. Professor Drummond says: "We know all but nothing of Life, yet nothing of development." We cannot say what life is; but can see its existence.

Life cannot be the mere aggregate of the material chemical substances composing the living being. Cuvier says that "it is inconsistent to suppose that Life can itself be produced by those affinities." "The mystery of Life is as impenetrable as the mystery of simple Being," says a recent writer, "and perhaps the most mysterious phenomenon of existence is Mind. Mind involves Life." But Life is not co-existent with all Matter, nor is Mind co-existent with all Life.

Mr. Wallace, treating of the question of the beginning of Life, writes:—"The first stage is the change from inorganic to organic. . . . This is often imputed to mere increase of complexity of chemical compounds, but . . . even if we admit that it may have produced protoplasm as a chemical compound, it could certainly not have produced *living* protoplasm. . . . There is in all this something quite beyond and apart from chemical changes, however complex. . . . The next stage is still more marvellous, still more completely beyond all possibility of explanation by matter, its laws and forces. It is the

introduction of sensations or consciousness, constituting the fundamental distinction between the animal and vegetable kingdoms. Here all idea of mere complication of structure producing the result is out of the question. We feel it to be altogether preposterous to assume . . . that an *ego* should start into existence a thing that *feels*, that is *conscious* of its existence."* "Sensation or Consciousness" here is of course not Mind, but mere Animal-Consciousness.

No final decision on the great question of Creation can yet be arrived at, whether reliance is placed on authority or on numbers. Time alone may decide. No true philosopher so much as attempts to explain the *original* creation of anything; and with regard to the creation of planets, the several theories on this subject are, as we have seen, by no means consistent with each other. Our knowledge of the operation of the Forces of Nature—Gravity, Inertia, Heat and Light, Electricity, Galvanism, and Magnetism, are yet imperfect. These are in themselves immaterial, having neither Ponderosity nor Extension, for although their influences may extend throughout all space, it can do so *only* by their *indwelling*, or becoming a mere *condition* of, some *Material* entity or thing in Nature. Now if it be that Ether is one of these "material things," such a fact would of course be another proof that Ether (*by which* they are enabled to so pervade all space) is in itself *Material*, and therefore ponderable in some degree.

That Electricity can travel through the air without any visible conductor was shown more than forty

* "Darwinism," by Alfred Russel Wallace (Macmillan).

years ago by Lindsay, an original genius, who succeeded in sending a telegraph message across the river Tay, a width of two miles. He repeated the experiment at one of the docks in the south in the presence of some Admiralty officials. The question has recently been revived, and some important practical results may yet be obtained from it.

At one time Heat was supposed to be a material thing, but now every schoolboy knows that an iron rod may be made red-hot, and yet be found no heavier whatever thereby. Light, which is generally considered to be the same as Heat, and the electrical forces, are all found equally imponderable. Heat permeates a material body throughout, whereas, as Faraday by an ingenious apparatus showed, electrification is *external*, as already stated.

Here we must refer to the Wave theory, which occasioned no little controversy of opinions amongst the learned savants of the first two decades of this century. The Undulatory theory was supposed to explain the transmission of Sound and Light, by waves of Air and Ether in straight lines of motion. In France Laplace, Biot, Arago, and Fresnel, and in this country Wollaston, Dr. Young, Lord Brougham, and others, joined in the fray. Finally, Malus, of Paris, discovered that in transmission the light-medium differed from the sound-medium in its mechanical action, and Dr. Young concluded that the vibrations concerned in the propagation of Light were executed *at right angles* to the direction of the ray"! By this assumption of transverse vibrations, which removed all difficulty, Young also removed the Ether from the class of aeriform bodies,

and endowed it with the properties of a semi-solid." *.

Nature, writing of a recent book † by W. J. Jerome Harrison, F.G.S., and C. A. White, says, "The authors have avoided speaking of Magnetic or Electric 'Fluids,' and have endeavoured to bring out the fact that these forces are but 'states or affections' of Matter, and their endeavour is much to be praised." As we have shown, none of these possess ponderosity nor in themselves extension.

Recent research seems to show that all action of these imponderable Forces of Nature must be due to the intervening of some material thing (call it Ether) existing between the planets and the other mutually acting bodies. Mr. George Forbes says: "The existence of such a medium seems to be necessary for an ultimate explanation of Gravity and Electricity." This reminds us of Sir Isaac Newton's suggestion of old, so far as regards Gravitation. He declared that "without mutual contact it was to him inconceivable that inanimate brute matter should, without the mediation of *something* . . . operate upon and affect other matter." Mr. Forbes goes on to say that "We are almost certain that such a medium does exist. The theory of Light has almost conclusively proved that there is such a medium pervading all space, and penetrating between the molecules of material bodies."

"It was our great philosopher Faraday who realized that all electrical phenomena are produced by

* "New Fragments," by John Tyndall, F.R.S., p. 281 (Longmans and Co., 1892).

† "Magnetism and Electricity" (Blackie and Son, London, 1890).

the electrification of a medium which fills all space. Faraday asked himself, 'Does the induction in a certain space vary when different insulating materials occupy that space?' He appealed to experiment, and received the most important reply which experiment ever gave him—which was simply, Yes! This brilliant discovery of Faraday's was extended and confirmed by a laborious research. . . . His idea, now universally accepted, was that we must abolish the idea of electricity being a Material." *

We have said that these Forces are all correlative. "In all experiments with electric currents we have continual evidence of the transformation of Electrical into Heat energy." And this seems equally true of Galvanism. But that Heat and Electricity are absolutely *identical* is by no means evident from what we know of their apparent properties, as we have already shown. "Heat and Light radiations are all absolutely identical except as to colour."

Of late great attention has been given to Magnetism, which is now believed to be "another manifestation of the same electrical energy." Mr. Forbes says "the most complete developments of the theory of Magnetism go far to prove that Magnetism is due simply and solely to the existence of a large number of small electric currents in the Molecules of Iron," &c. † This explanation, however, seems to infer that the axes of all electrified conductors (Matter) are true Polar Magnets.

Every magnetic body has two Poles, North and

* "Lectures on Electricity," by George Forbes, M.A., F.R.S., pp. 27–29 (Longmans and Co.).

† "Lectures on Electricity," p. 68.

South. If you take a magnetic iron rod with its North Pole on your right, and cut it in two, or in twenty, or in a hundred parts, each such part, *however minute* in length, will have a North Pole on the right, and a South Pole on the left. This implies that every molecule of magnetized matter is in itself a separate magnet. If so, this is a most important fact. It suggests that the particles or Molecules of the Material Ether of space may all be separate magnets—the South Pole of each attracting the North Pole of its adjacent particle, thus connecting by a chain as it were every Solar body with all the rest of the System. Without an Ether in some sense Material this would be impossible.

We have gone much further into this subject than we intended, because it is better to try to meet difficulties than to merely evade them. The reader who desires a concise exposition of Electrical Magnetism should consult some popular work on the subject. The greatest discoverers in this field of science were Oersted, and subsequently Faraday, the most modest of scientists. The commercial and industrial applications following their great discoveries are innumerable, as witnessed by the Telegraph and its *confrères*, many of which we owe to the wonderful inventive genius of Edison, as also to Sir W. Thomson's most important investigations and discoveries.

Professor J. A. Ewing, in an interesting and important communication made to the British Association, 1890, exhibited a model to illustrate some novel ideas on the Molecular theory of induced Magnetism (*vide Phil. Mag.*, September, 1890).

He supposes that each molecular magnet is perfectly free to turn except in so far as it is influenced by the mutual action of the entire system of Molecular Magnets.

Having all these considerations in view, we now return to the question of the retardation of the Planets by friction of the Material Ether. Scientifically there is no getting quit of this objection; but as there is no reason we know of against such supposition, we may suppose that the rarefaction of the Ether is *indefinitely* great. That is, the Ether is so almost inconceivably rare as to reduce such friction to *the extreme verge of zero.* Thus the retardation of the Planets might be so very trifling as to be quite imperceptible to human observation or calculation by any means known to us, and if friction can be so indefinitely reduced, the period of time which may elapse before its effects can be observed may also be *indefinitely* great beyond our limited means of detection. This idea does not imply that an actual vacuum may exist in space, nor that the extreme rareness of the Ether would cease to act as a medium for Gravitation or Light. We find that Sir Isaac Newton held this view. He estimated the density of Ether to be 600 million times less than that of Water, and inferred that the resistance it opposes to the motions of the planets would not be sensible in 10,000 years.* The almost perfect darkness of the Ether is an indication of its extreme tenuity, because it does not afford any *visible* impediment to the innumerable rays of the sun passing through it.

* Sir David Brewster's "Life of Newton," chap. xvii.

With regard to the origin of Life and Mind, the controversy has long been carried on, and with increasing acumen, chiefly by the Zoological Evolutionists. The literature on this subject would now form a small library. Some assume that Man was evolved from the Ape; the Ape by numerous stages evolved from the Reptilia; the Reptilia from the Mollusca; and the Mollusca, by many more stages, evolved from Protoplasma. No doubt the modern Evolution Naturalists differ as to the line of descent, but all seem to claim that Man is evolved from a Monad.

Protoplasm consists of a lump of inorganic matter similar to Protein, a mixture of carbon, gases, and water, under "favourable conditions." Here continues the crucial question—Whence comes the first "spark of Life" and of Mind? None of these elements of dead matter contains them; and, this being so, all the heaping up of these elements, and of all known elements, including even Electricity and Galvanism, and the other non-vital Forces of Nature, can never produce them. Even although amalgamated in endless combinations, and in all and every known condition, "favourable" or otherwise, of temperature or surroundings—and although transposed and mingled throughout millions of ages—can they ever produce either Life or Mind? As well might one go on for ever adding up columns of ciphers, expecting to obtain the smallest fraction of a sum. "Out of nothing nothing comes;" nor can they be gained even by piling Ossa upon Pelion. Science has failed to show that such is possible.

"To Carlyle, life was wholly mystical. Experiments

pointed that life was derived from antecedent life and was not generated from dead matter . . . which fell in with his notions of the fitness of things." * However, an important distinction must be drawn between Life and Mind. We may possibly believe in transmutation as far as mere Animal Life is concerned, for to some it is not absolutely incredible, but as regards Mind *the Two Spheres of Truth show that such transmutation is absolutely impossible.* Impossible because Matter and Mind are absolutely incommensurable.

Other theories of the origin of Life and Mind have been proposed by different writers. For example, the idea that all Matter is accompanied by what has been called "Mind-Stuff." Bruno, a poet and Pantheistic philosopher of Naples (burned A.D. 1600), a martyr of science, held that a spirit exists in all things — evidently an unfounded assertion; and Haeckel says: "All bodies are equally animated; whenever there is corporeal substance there is also mental power"—a mere unwarranted assumption. Another suggestion is that, in some unexplained and mysterious way, vitality is added during, or at the moment of, evolution, which just amounts to a *new Creation;* and finally, it is held by some that Life never had a beginning. These and other theories are too indefinite for our discussions here.

That Life never had a beginning is a proposition of a kind in which, perhaps, Metaphysicians delight; for it seems impossible either to prove or to disprove it by strict logical forms. But what Metaphysics

* "New Fragments," by John Tyndall, F.R.S., 1892, p. 351.

seems powerless to prove, Geology has arisen to solve, we think, definitely. That Dr. Paley's watch must have had a beginning is generally *assumed* as an obvious fact, but still no witness appears to give evidence that at some previous period it did *not* exist, and so his argument seems *theoretically* open to question as *logically* not perfect. But now, to use the words of a geologist, Geology shows that "all organic existences, recent or extinct, vegetable or animal, have had their beginning." The primitive rocks show that there was a time on our earth when organic Life was not. . . . "By what, or through whom, did these races of nicely organized plants and animals begin to be?" For where Life has been it must needs leave some footprints on the sands of Time; even a worm must leave some trace of its existence. "Nature," says Goethe, "will be repeated. All things are engaged in writing their own history." It is, moreover, evident that this argument is not invalidated, but strengthened, by the theory of a fiery cataclysm on this globe, such as some think is indicated by the igneous rocks, and the supposed semi-fusion by heat of its original condition, ages before the existence of organic life. Consequently such ideas only add to the force of the argument that *all our organic creations must have had a beginning subsequent thereto.*

According to Mr. Spencer, "It is no more needful to suppose an absolute commencement of organic life, or a 'first organism,' than it is needful to suppose an absolute commencement of social life, and a first social organism;" but the parallelism of these two things is not clear, for they are not commen-

surate. Our TEST shows that here a fallacy lurks. The elements of Protoplasm are all only dead matter (NATURAL), while *social Life* contains the element of Mind (a spiritual, *i.e.*, UNIVERSAL, truth). The difficulty is obvious, and the Materialistic Evolutionists fail to meet it. Professor Haeckel, in his book, *The History of Creation; or, the Development of Earth and its Inhabitants by the Action of Natural Causes*, distinguishes between the creation of Matter and the creation of Material Forms, on the ground that the former is beyond human comprehension. Is not the latter equally so? He says that "Creation in the first sense—the coming into existence of Matter—does not concern us here at all. . . . The process, *if indeed it ever took place*, is completely beyond human comprehension; . . . the scientific history of Creation is concerned only with creation in its secondary meaning, namely, the coming into being of the forms of Material Bodies." This seems to us a convenient but most unphilosophical way of escape from the general question of creation at large, for Science should have as much to do with the one as with the other. It seems somewhat akin to Comte's plan of declining to deal with truths other than those limited to the *Natural* sphere. The method of evading a question, on the ground that we do not know, would be fatal to all argument; for *how little there is that we really do know* beyond the fact that we do exist and the truths of geometry! Could even Berkeley refuse to admit this? It is not true that we cannot conceive that the Infinite exists because we cannot comprehend it, or, to quote the words of Mr. Curtis, "Although we can only

define the finite, the infinite is not the less a subject of true thinking." *

All such arguments appear to us intangible, because, however far back we may go into the ages, there evidently must have been some *point*, even by the Evolution theory, *when Matter began to evolve upwards to Mind*, and some definite *moment when Life began* to show itself in one or more moving creatures, however diminutive. "To Laplace it must have been apparent, as it is to us, that the whole of this process of Evolution *implies a commencement*—that however far back we go in time we come to a point at which the mutual relationship *must have begun*." † Indeed, "the question of Evolution in its thoroughness cannot be considered apart from the question of origin." ‡ *The theory of indefinite, unlimited Evolution here seems a fatal objection to itself.* For if there has been no Evolution, the idea that Matter and Life had no beginning would at least cease to be so perfectly illogical, contradicted as such an idea is by the facts of Geology. Hence *we have a complete contradiction between Evolution and the "past-Eternity-of-Things" theory*, so obvious that we need not dwell upon the point.

Any other belief seems equivalent to a claim for the existence of Life and Animal-Consciousness, not only in a Mollusc, but even in Protoplasm, or whatever else is lower or earlier in the scale of animal being. And this, too, from its *first* beginning, back in the dawning of Time, and onward till the vastly

* "Creation or Evolution" (London, 1887).

† "Nature and Man," p. 896.

‡ "Preorganic Evolution," p. 118, by Charles Chapman, M.A. (Edinburgh, Clark, 1891).

later period in time when (by some slow process of development) animal life reached upwards to a creature possessed of *some* appreciable or reasonable degree of perception of *the external* world around and beyond it. This seems mere incipient *Materialism.* However, Dr. Darwin freely admitted that no animal is self-conscious.

That Lives, scarcely deserving of the name, without feeling or conscious perception, in creatures all of types lower than the Invertebrate, could have occupied this grand world of ours by themselves alone, and for indefinite or incalculable ages, and yet without any capacity for enjoyment thereof, is to us an idea too irrational for thought, an inconceivable waste, and contradicted by the obvious "Husbandry in Heaven." Mr. Spencer cannot surely mean this, for, while one of the chief Evolutionists, and, like Abou Ben Adhem, "exceeding bold,"* he is, we believe, at the same time one of the most painstaking of thinkers—too elaborate for most readers, but fair, and often clear—not given by any means to intentional subterfuge. What, then, does he mean?

All these theories of Creation by Evolution fail in showing us how even the material Planetary System came into existence; for every one of them presupposes existing Matter, it may be in Chaos, and even then they also presuppose important prerequisites. For example, Inertia-Motion, and Gravitation. Out of nothing, nothing can be *Evolved.*

Lord Huxley has in his recent book given to the world an epitome of his views. In the Prologue he schedules these on his favourite subjects, the Facts

* Leigh Hunt's Poems.

of Embryology and Palæontology. He says: "Plants and Animals have existed on our planet for many hundred thousand years. During this time their forms, or species, have undergone a succession of changes, which eventually gave rise to the species which constitute the present living population of the earth. . . . At present, every individual animal or plant commences its existence as an organism of extremely simple anatomical structure; and it acquires all the complexity it ultimately possesses by gradual differentiation into parts of various structure and function." Again, "There is no evidence that this secular process of evolution is other than a part of the ordinary course of Nature."

"How far down the scale of animal life the phenomena of consciousness are manifested it is impossible to say, . . . the fact remains that . . . the psychical phenomena are dependent on the physical." Again, "It would appear that the sort of brain which characterizes the highest in mammals, and which, as far as we know, is the indispensable condition of the highest sensibility, did not come into existence before the Tertiary epoch." Again, "There must have been some time, between the much earlier epoch in which they constituted the whole animal population and the Silurian, in which feeling dawned, in consequence of the organism having reached the stage of evolution on which it depends." *

Dr. Huxley does not here admit supernatural intervention. Now if the "extremely simple anatomical structure" in which an "existence" appears to "commence" is a single cell, which grows into two

* "Essays upon some Controverted Questions," pp. 40–48, 1892.

cells and so on, till in course of time it acquires all the complexity it ultimately possesses, the process deserves examination. The question arises, How did it come into existence? for there is no effect nor differentiation without a cause—not even "in the ordinary course of Nature." The parentage of the first cell thus becomes a question of primary importance. If of a vegetable seed, it possessed Vegetable Life, and its growth will result in a plant: if of an animal germ, it possessed Animal Life, and will result in an animal of a definite species, possessing feeling and intelligence less or more. With submission to all superior authorities, we submit the fact, that the words, "a succession of changes," "gradual differentiation," "come into existence," and "feeling dawned," all arise from a pre-established harmony, the result of superhuman prevision.

As to the theory of Creation of Life by Evolution out of dead organic matter, the evidence is apparently a failure. When the question came before the British Association, if we remember aright, at Newcastle, now many years ago, great expectations were evidently entertained by certain scientists that the numerous experiments then in vogue would show that Galvanism and Electricity were the great factors in originating Life. But the event proved a complete disappointment, and it is remarkable that ever since that time little has been heard of these potent forces of Nature in connection with this subject, for the experiments were all in vain. Motion was obtained of the muscles, but merely mechanical. Perhaps also valuable knowledge of a curative character; but Life, as most thinkers predicted, eluded

research. Undoubtedly these half-boastful experiments did much harm in originating a general and unreasoning prejudice against all speculations, even when well founded, which it has taken many years to overcome. Dr. Darwin wrote: "As for Rotifers and Tandigrades being spontaneously generated, my mind can no more digest such statements, whether true or false, than my stomach can digest a lump of lead." And Professor Caird says: "Protoplasm, the supposed physical basis of Life, cannot be placed on the level of mere chemical compounds. The protoplasm which can be analysed, and of which the chemical constitution is known, is not living, but dead protoplasm."* "Protoplasm," says Sir J. W. Dawson, "has been called the physical basis of life; but this is merely a form of words to conceal ignorance."

Herbert Spencer seems to claim Mind as a mere evolution from animal Instinct, an idea which to us seems inconceivable by any one who keeps clearly in view the absolute distinction between Instinct and Reason (which we have already insisted on). They are essentially *incommensurate*—the former being a NATURAL Truth, the latter a spiritual and UNIVERSAL one. Between these is a gulf as wide and complete as can be imagined.

Although Darwin and the other great Naturalists did not proclaim antagonism to the doctrine of a First Cause, some of their followers have, we think, been less careful, and seem gratuitously to assume that the doctrine of Evolution fully carried out *necessarily* disproves the existence of a First Cause.† The theologians, under the same erroneous impres-

* "Comte," by Professor Caird, p. 108. † "Agnosticism," p. 126.

sion, have generally opposed this Evolution doctrine with the greatest persistence, and, with few exceptions, long refused to look at the scientific facts upon which it is based. This has been for them most unfortunate, because the facts remain, and have given their opponents an apparently easy victory. But the facts, thoroughly examined, while probably proving the truth of Evolution, *do not disprove a Supreme First Cause*, inasmuch as Evolution is *Limited* in its sphere of operation, and is simply an example of one mode of His operations as exposed to man's observation, but nothing more, so far as any evidence has appeared.

Lord Huxley once wrote: "It is, and always has been, a favourite tenet of mine that Atheism is as absurd, logically speaking, as Polytheism." Even on the question of Miracles, Argyll writes that it "*now* seems to be admitted on all hands, that the question of Miracles is simply a question of evidence," as, indeed, all questions of fact should be. Elsewhere he says: "A miracle does not consist in any breach of the eternal Laws of Nature." Now, both miracles and the Laws of Nature belong to the *Natural* Sphere, and to call the latter "eternal" is, we presume, a mere oversight. Such laws, although only natural, are inexorable, and cannot be evaded by us; but being in the Natural Sphere, they are temporal, and so devoid of Continuity.

The truth of Miracles is questioned by many thinkers, just as they properly enough question whatever appears to be non-natural. The most eminent Darwinians, and many of the highest class of Philosophers, seem to admit their *possibility;* nor do

we see upon what grounds this can be denied. One of their most influential authorities, other than one or two infidel writers, is Matthew Arnold,* who objects to them as inexpedient. He says the Masses throw aside the Bible on their account as incredible —which seems the reverse of general opinion, and it is by no means an heroic position to take up. His main argument is founded on his general objection to all Metaphysical Dogmas. Logic may be illustrated by two kinds of facts: (1) those of Geometry, (2) those of Metaphysics. The first are *necessarily* true; the second are complex, and depend upon collateral evidence. All Miracles being NATURAL are true or false according to the kind and degree of evidence by which they are supported. It seems vain to controvert statements and assumptions which are not built up on some Logical basis. The Bible Miracles are considered doubtful, and some may appear improbable and incredible, but the question remains, are they all *impossible?* Modern miracles, claiming to be such, may be tested and proved on the spot.

The Latin aphorism, "Vox populi vox Dei" ("The voice of the people is the voice of God"), may be true, but *only* if the "Masses" have some reasonable grounds of knowledge. It may be little, but so far as it goes it must be based on some logical foundation. It has been said that although misled by passion or prejudice, they have an intuitive love of justice which will eventually prevail, as right always will against both error and might.

There was and is a tendency to impute Infidel and

* "Literature and Dogma," chap. v. (Smith, Elder and Co., 1889).

Atheistic opinions to the advocates of Evolution generally. This is very unfair to an impartial study of that theory, and, as already stated, is evidently a mistake. All the *great* teachers of these opinions, we think, have admitted that above and beyond Evolution there exists a Great Power—the original Creator of the Elements of the material world; and they stop short of the extreme views more recently proclaimed by their imitators, sometimes under the shadow of their great names. This latter class are sometimes experts in science, eminent specially in Palæontology and Zoology. They appear to us, with singular perseverance, to build up, step by step, but sometimes leap by leap, the most wonderful hypotheses. One learned scientist writes thus: "Facts demand an even deeper penetration, and *transport* us into that *creative state of enthusiasm* which, being the imaginative faculty of thinking man, raises us above those who remain standing amid their own surroundings." * We are here apt to recall the words of our great poet:—

"Such tricks hath strong imagination." †

With one it is the hoof of the horse, with another the number of teeth possessed by Mammals, and out of these, and even out of doubtful microscopic objects, they "make up" a history of Man. This class of scientists has been rather numerous during the last decade. Every successive year they seem to have been more and more anxiously expecting that some great new fossil examples would be dis-

* "Mammalia," by Professor Oscar Schmidt, p. viii. preface (London 1885).

† "Midsummer Night's Dream," act v. sc. 1.

covered. We mean such fossils as would fill up the many gaps in their Mammalian genealogical trees. But specially a fossil of Ape-Man is coveted, such as would clearly show the truth of their theories, to the reproof of those who presently prefer to wait patiently for more light.

But they are evidently greatly disappointed. Dr. Darwin *candidly expresses his surprise at the absence of this necessary fossil*, as well he might, and Dr. Wallace seems to be expecting its discovery. It appears that the extreme Evolutionists' views are making no advance, more especially of late; indeed, one authority admits that the study of Anthropology can in no way boast of having made any definite progress during the last dozen years.*

The name of Cuvier is often quoted as a warrant for great speculations. Cuvier's words, "Give me a tooth and I will build up the whole animal," may have been probably true if a tusk of the genus Mastodon was meant. But the assumptions of some more recent Cuviers are many times more wonderful. By the mere *number* of his teeth they will write Man's history backwards to the ape and reptile. We certainly ought not to apply the word "absurd" to any scientist's opinion, but the contention that animals rise in the scale of intelligence according to the lesser number of their teeth seems an *unmeaning* assumption. If the reptile has more teeth than the tiger, and the tiger more than the ape, the *obvious* reason is that each has just the *exact number it requires* to devour and masticate its peculiar kind of food *most perfectly*. But the climax of unreason is

* Professor Schmidt's "Mammalia" (London, 1885).

surely reached by the extraordinary suggestion that should Man have fewer teeth he is only a higher-class animal than his so-called mammal "ancestors!" Man's food is different, and *he can cook it*, which animals cannot do; so that additional teeth would be unnecessary and inconvenient, and opposed to the severe economy of Nature.

In order to eke out these ideas as to the origin of Life some metaphysical theory or proposition is commonly taken up. Perhaps that "Consciousness is an attribute of Matter," which is Monism; or it may be this opposite doctrine, that "Consciousness is a product of the evolution of Matter and Force;" which different propositions appear to us purely gratuituous and contradictory opinions, both alike remaining to be proved. We have already seen that Consciousness (Mind) is really independent of Matter, being immortal, and thus a spiritual or Universal Truth.

Cuvier's eminent pupil, the late Sir Richard Owen, accepted the limited theory of Natural Descent, that is, under a special Divine direction, and this view of Evolution appears to commend itself to numerous thinkers. He said, "I believe the horse to have been predestinated and prepared for Man, . . . the manifestation of an Almighty Will, working towards a definite purpose." Aristotle, perhaps the greatest of Greek Philosophers, also believed that "Nature" worked towards a definite purpose. Gaudry, one of the best qualified naturalists of recent years, while maintaining the incontestability of the theory of Descent, "remains," Professor Schmidt somewhat cynically says, "within the realms of Miracles, and

supposes a Personal Creator to have directed the countless forms of development towards definite and preordained purposes." * He, however, admits that Gaudry, "in a very admirable work, has given an account of the main substance, and the results of all the Palæontologico-Zoological inquiries." †

Professor Schmidt may be classed as an extreme Evolutionist. He says: "The alternative as to whether Man was created or developed can no longer be raised, now that we are exercising the free use of our reason." This seems a high-handed kind of argument, very unlike Lord Huxley's definition of Agnosticism. Professor Schmidt continues: "Man's dentition has to be judged from our experiences made in the Mammalian group. . . . We shall not hesitate to maintain that the [so called] ancestors of Man possessed a fuller number of teeth, as long as deductions are justified from the observation of facts." ‡ It is unnecessary to maintain what is not denied; but, as we have already stated, the common-sense fact evidently is, that the *so-called* Ape ancestors of Man had the number of teeth *best* adapted to their needs, and Man (without reference to them) has just the number of teeth *best* adapted to his needs, which are quite different. His argument seems singularly inapplicable to the question.

Some one has said § that this axiom—"to be *certain* is no more than to have courage in our opinions," is the root of Kant's Philosophy. Whether this be so or not, as regards Kant's, it seems to be a distinguishing mark of that of Professor Schmidt.

* Schmidt's "Mammalia," pp. 48, 63, 64. † Ibid., pp. 48, 63, 64
‡ Ibid., p., 298 (London, 1885). § *Academy*, 1890, p. 81.

TENTH LECTURE.

THE ROCKS—THE FIRST LIFE—DARWINISM—CRYSTALLIZATION —PROTOPLASM—ANIMAL CONSCIOUSNESS—THE IMPASSABLE GULF—IDEAS—ANECDOTES.

THE question of Evolution has become so involved with almost all philosophical arguments that we here propose to consider the theory of its celebrated founder. Into the discussions which have arisen over Dr. Darwin's theories, in a Geological sense, of course we cannot enter; but we will, even at the risk of being commonplace, try to give our non-scientifice readers some indication of their main points.

In his "Origin of Species," Darwin states his views thus: "I believe that Animals have descended from at most only four or five progenitors, and plants from an equal or lesser number. Analogy would lead me farther. . . . I should infer from analogy that probably all the organic beings which have ever lived on this earth have descended from some one primordial form, *into which life was first breathed.*"

Here our reader will remark *the great importance of Dr. Darwin's inference, as to the origin of all Animal Life. It contradicts the famous Evolutionist theory, that mere inanimate protoplasm produced Life.* Beast, fowl and polype "all are composed of

structural units of the same character, namely masses of protoplasm WITH A NUCLEUS.*

Geology does not quite clearly confirm the idea, even of the evolution of one Species from another. The known strata of our globe consist of, (1) and lowest, *Primary* rocks; (2) *Secondary*, and (3) *Tertiary* formations. Of these the *Primary* strata is the thickest, representing by far the longest period of time, and is usually divided into different sections. In the lowest, or Cambrian section, there are no traces whatever either of plants or of animals. In the next or Silurian section Trilobites and Cuttle-fish are found, in the upper section Fishes appear, and in the highest Primary section, reptiles and insects first appear. In the *Secondary formation*, Birds and Marsupial mammals are found, then soft-scale fishes. In the lower strata of the *Tertiary formation* are found, Bats, Dolphins, Bees, &c.; in its middle strata, the Ape, Dog, Lion, Ox, Whale, &c., appear; and, finally, in its highest strata, first other Mammals and subsequently Man are found.

Now, nowhere in this history of Life is there evidence of one species Evolving another and higher species. But singular evidence to the contrary incidentally appears in the fact that the Cuttle-fish, the *earliest* discovered animal Life, have organs of the *most perfect kind.* Dr. Darwin was puzzled with this, for with his usual candour he said that "the belief that an organ so perfect as the eye could have been formed by Natural Selection is more than enough to stagger any one." Beside this, unfortunately for his theory of continuous development, it has been

* "Natural Law" by Professor Drummond, p. 289.

found by Sir David Brewster that the eye lens of the Cuttle-fish, one of the *very earliest* animals, "is as perfect and more complex than even that of Man." "No deviation," says Cuvier, "in the ordinary form of this animal (the Cuttle-fish) has ever produced or can constitute a being placed beneath it; nor can, or ever will, its better development give rise to a series of animals of a more perfect species to be placed above it. . . . In vain shall we attempt to approximate these mollusca to some fishes whose skeleton has almost disappeared. . . . In a word, we see here Nature passing from one plan to another, making a leap, and leaving between its productions a manifest *hiatus*."

To meet the objection of the first appearance of Animal life in so complete a form, Dr. Darwin assumes the extreme imperfection of the geological record, and suggests that there must be strata much older than the known *azoic* formations, or those without life, not yet discovered. This is, of course, an assumption, the truth of which must remain extremely doubtful until a discovery of such supposed strata, with some evidence of yet older and lower animal life, be made. Dr. Darwin, while evidently expectant of such discovery, honestly admits that—"He who rejects these views on the nature of the geological record will *rightly reject* my whole theory. For he may ask in vain for the numberless transitional links which *must* formerly have connected the closely allied or representative species found in the several stages of the same great formations."

This seems a very bold asseveration, and it is another

evidence of Darwin's remarkable candour, as well as of his confidence in the Evolution theory. Nor does it appear that this great desideratum, *improbable in the extreme* as it certainly seems, can be called absolutely incredible. Granite, which is the "fundamental rock of the Earth," cannot be proved to be the *original* primitive rock. It is a crystalline structure formed of *previous* primitive rocks, apparently fused by internal fire, and probably crystallized in the act of cooling. This consideration may supply a shadow of a possible *antecedent* primitive rock, but even admitting its existence, there is not the least indication that any animal or vegetable life ever existed in it.

Whilst Dr. Darwin seems to fail on the Geological platform of the controversy, he is apparently more successful on that of the Naturalist. His pre-eminent discoveries, and his singularly clear exposition of them, led to the discovery of his great theory of Evolution, and primarily secured its popularity. It is quite beyond our power to give any concise description of them. We believe the reader may safely trust to his facts; his deductions therefrom, however, must be open to general criticism. For this his freedom from mere dogmatism gives every facility, inasmuch as he framed his opinions chiefly upon his previously discovered facts, and not, as we all are in danger of doing, seeing facts through the coloured medium of our preconceived opinions.

Von O. Loew and Bokorny suggest that "the cause of the living movements in Protoplasm is to be sought for in the intense atomic movements, and therefore easy metamorphosis, of its Aldehyde

groups of components," * the molecular movements becoming molar, to use the language of Lester Ward. That "*intense atomic movements*" may arise from, or produce Heat or Light or Magnetism, or even Decomposition, or new chemical Combinations, is conceivable, and all of these are in the *Natural* Sphere, but Consciousness belongs to none of them, and is of the *Universal* Sphere, so that this attempt to bridge over the great Gulf between inert Matter and Life is only one more failure. This seems just a reversal of the relations of these phenomena as held by Dr. Cope; but is it not equally devoid of logical meaning? Aldehyde is a semi-gaseous fluid obtained by passing alcohol through red-hot pipes.

Professor Cope, an able advocate of Evolution in its fullest sense, writes that Protoplasm "is manufactured by living plants out of inorganic matter, the hydrogen, carbon, nitrogen, and oxygen contained in the atmosphere and in the earth. As dead plants will not perform this function, this action is regarded as in some way due to the presence of life. The energy peculiar to living protoplasm, and derived primarily in part only from the sun's rays, directs energy so that the complex molecular aggregation Protoplasm is the result. This is the only known method of manufacture from inorganic matter of this substance." † [Can this manufacture be shown by experiment under inspection?] "The first piece of protoplasm had, however, no paternal protoplasm from which to derive its being. The protoplasm-producing energy must, therefore, have

* "Protoplasma," i. (Munich, 1881).

† "Origin of the Fittest," 1887, p. 481.

previously existed in some form of Matter not protoplasm. This is also suggested by the fact that it really antagonizes the chemical forces. . . . The plant life is a derivative of the 'primitive life,' and it has retained enough of the primitive quality of self-maintenance to prevent it from running down into forms of energy which are below the life level—that is, such as are of the inorganic chemical type or the crystalline physical type. . . . If, then, some form of Matter other than Protoplasm has been capable of sustaining the essential energy of Life, it remains for future research to detect it." *

This entire paragraph seems at first sight a puzzle. However, let us try to discover its meaning. Protoplasm is manufactured out of inert matter by living Vegetable plants (not dead plants). The energy peculiar to the *life*—but what life: animal or vegetable?—of the Protoplasm (thus manufactured), "and derived primarily in part only from the Sun's rays, directs energy so that the complex molecular aggregation Protoplasm is the result. This is the only known method of manufacture from inorganic matter of this substance." Here we appear to have Animal Life evolved from Vegetable life, its energy being derived primarily in part only from the sun's rays. This manifest mixing up of Animal life with Vegetable life and Primitive life—all different entities—leads only to confusion. We thus seem to have very quietly leaped across the gulf which divides Living Animal matter from Vegetation, before we are aware of the act! The natural assumption seems to be that this Animal Life was derived from the plant. Vegetables are not living

* "Origin of the Fittest," 1887, p. 481.

creatures as Animals are. Then, where or when, and by what process did *this animal Life* begin, or become evolved out of inorganic inert matter into the Protoplasm? Animal Life and Vegetable Life are very different; there is not even an analogy between them. Vegetable Life is derived from the germ of its seed, which survives the individual plant, and reproduces itself even at the distance of thirty centuries! Animal Life does not survive its *individual* germ of Life for one minute!

If the allusion to "Chemical types" and "Crystalline physical type" refer to the idea of Crystallization as typical of Life, the illustration cannot be admitted without explanation. There is really no similarity between crystals and living matter, or living organisms. The crystal in forming may possibly be possessed of two properties — mere *chemical*-heat, and minute resoluting motion, although of this fact we were not aware—while the Living matter is possessed of vital-heat and motion, also of inward absorption, and growth by *assimilation* and feeling, as also of sexual affinity and powers of reproduction. Of all these the crystal is absolutely devoid. The crystal may increase in size, but *only* by *accretion* externally, that is, the addition of more crystal matter to its outside. It is therefore evident that it is possessed of none of these attributes of growth, even in the *minutest degree*, and consequently is quite incapable of developing Life. The subject of Crystallization is treated in a very lucid and pleasant manner by Professor Tyndall, to whose Lectures * the reader who wishes to study the matter should refer.

* "Six Lectures on Light"; Lecture III. (Longmans, 1885).

Crystallization is a subject of great importance in relation to the *Forms* of Material bodies. Besides the force of Gravity, which belongs to Matter in general, all magnets and all magnetic bodies are endowed with the Polar force of magnetism. Every Molecule of a Liquid becomes Magnetic, having a North and a South Pole—the North Pole of every Molecule repelling the North Pole of every other Molecule, but attracting and adhering to its South Pole. In favourable conditions, therefore, they form solid crystals. In the case of Water, ice crystals and Icebergs; in that of Alum, Alum-crystals; in the case of Quartz, Quartz-crystals. In one particular they assert their superiority over all accidents—their angular measurement is always preserved. In the case of Water, an inflexible power limits its spears to the angle of 60 degrees. As Dr. Tyndall, from whom we freely quote, writes: "In the process of Crystallization, Nature first reveals herself as a *builder. Where do her operations stop?*" The question is far-reaching and extremely suggestive.

The Protoplasm theory by no means seems a satisfactory explanation of Life. The Earth, Air, and Water of our globe—every spot on which the Sun shines, and every spot where he does not—all are swarming with living creatures, or germs of life, so minute as to be invisible to the naked eye. There will always be uncertainty, therefore, as to the first indication of life in the mass of protoplasm, because no care can prevent these living creatures from access to it, more especially because some of them are not destroyed by frost, nor yet by heat, even at the boiling point. Professor Huxley candidly

writes: "No one has ever yet built up one particle of living matter out of lifeless elements; every living creature, from the simplest to the highest, has its origin in pre-existent living matter." * Our readers will remember Dr. Darwin's inference that "all the organic beings . . . have descended from some one primordial form *into which Life was first breathed.*" He who *first breathed this Life could only have been the Great Creator.* Dr. Darwin also assumed (in 1878) that mankind have arisen at one place, and in a single pair.

Dr. Romanes thus writes: "It happens now as it happened thirty years ago that highly distinguished Botanists and Zoologists [not Naturalists?] prove themselves incapable as judges of general reasoning." †

Dr. Cope is candid enough to admit that Protoplasm is not so clearly the origin of life as is generally supposed, and that the true natural origin may still remain to be discovered. Scientists must be supreme in their own sphere; but as we have seen the extraodinary differences of opinion amongst the Philosophers, so here also great differences appear amongst the Scientific Evolutionists on many important points.

One of the most important finds of fossils in modern times was made after the landslip of Pitkermi, near Marathon, in Greece. Within the small space of 300 paces by 60 paces were found an almost incredible accumulation of remains of Vertebrates and numerous gigantic four-footed crea-

* "Art. Biology," *Encyclopædia Britannica*, 9th edition.

† "Darwin and after Darwin," p. 11. (Longmans and Co., 1892).

tures of primeval times, including the Dinotherium and the Mastadon, also the Rhinoceros, and Carnivora surpassing the Lion and the Panther of Africa, with numerous other creatures. Much has been doubtfully made of the examination of these remains, said to belong to intermediate forms, of which the want had been so greatly felt. But, on the other hand, the disappointment was evidently great *that not a single anthropomorphous Ape was found.*

Then, that such an extraordinary and varied collection should have been found crowded in so small a space seems to indicate the result of some sudden physical catastrophe, apparently contrary to the new doctrine that no such catastrophe has ever occurred on our globe. This new doctrine seems also somewhat at variance with the Glacier theory of the Ice Age; and the discovery now made that Siberia contains remains of great Mammals, such as Elephants, Mastodons, and the like, and evidence of a rich vegetation; and farther, with the appearance of sea-shells on mountain tops, even far inland. These may possibly be otherwise explained, but perhaps not rendered more probable, than by the theory of an important upheaval of portions of the earth's surface, or otherwise a *sudden* reversal of the then existing climates.

"The process of succession," Dr. Cope maintains, "has been towards greater effectiveness of mechanical work. There are also cases of degradation, as in the growing deficiency of dentition in man. . . . We are now brought to the question of the relations which mind bears to these principles. The question as to the nature of mind is not so complex as it

might seem. . . . An analysis reduces it to a few principal types of departments—the departments of the intelligence and of the emotions, and the will, *if such there be*, . . . three groups as applied to both men and the lower animals. [We have seen that animals have no free-will.] . . . But the question of the material of the mind, the original raw stuff out of which mind was made, is one which is claiming attention now, as it always has done. . . . This is sensibility, mere simple sensibility, unmodified sensation, *or Consciousness.*" We must remark that this word *or* seems quite incongruous here, connecting, as it does, Sensation, a NATURAL fact with Consciousness (Mind), a UNIVERSAL entity —two incommensurable things.

But Dr. Cope seems completely to ignore the grand question, Whence comes (1) this mere simple sensibility, *i.e.*, Animal life, or (2) *Consciousness? i.e.*, Mind. No doubt the learned Professor would tell us plainly if he could, but he plunges boldly into the gulf under a cloud of learned words having no direct relation to *this* question. He does not see that he has failed, like every one else (as we think), to accomplish his self-imposed task of carrying ordinary readers across this unfathomable gulf. There are writers, indeed, who to their own satisfaction bridge the gulf as by a *coup de main;* and the feat reminds one of Camilla, who could

> "Trip o'er the unbending corn and skim along the main."

But ordinary mortals, we think, require more solid footing.

There seem to be some Naturalist philosophers who

hold that we have no knowledge of anything but the Matter and Motion which lie within the range of experience. Other metaphysicians again, as Dr. Carpenter says, "have reasoned as if our concern were with Mental operations alone, and as if the abstractions in which they deal had an existence *per se*, without any relation to the phenomena of Nature." Professor B. Martin well said that "all true Science involves both the knowledge of Nature and the knowledge of Man." A philosopher can have no complete knowledge of either without investigating both—which of course includes Mind.

We have repeatedly referred to the impassable gulf which lies between Instinct and Mind, or, in other words, between Animal Instinct and Reason, and we have seen that attempts to cross this gulf have all signally failed.

The intelligent reader will not suppose that in using the term "Gulf" to illustrate the distinction between Natural and Universal Truth, we are losing sight of the essential oneness of Truth. At the risk of unnecessary repetition it must be once more affirmed that Truth is one, albeit of two kinds. The Sphere of Natural Truth is limited—that of Universal Truth is illimitable. No more apt illustration could be found than that of the two parallel straight lines, one comparatively short, bounded at both ends by Time—the other without beginning or ending. The hand that draws them both is the Great First Cause, and the *direction* of both alike is towards the Infinite, both being alike True.

An eminent champion of Animal Instinct has re-

appeared, whose eminence in literature must command a full consideration of any theory he puts forward. Mr. St. George Mivart, Mr. Wallace, Professor De Quatrefages, and other eminent authorities,* hold that the difference between Man and the brute is one of *Kind*, not of *Degree;* but Mr. Romanes holds an opinion exactly the reverse—a distinction, this, of the very first importance. The writers named concede the theory of Evolution in the animal world, but Mr. Romanes extends it from Mammal to Man, *i.e.*, from Instinct to Mind. His suggestion for filling up the gulf of separation is very original. He accomplishes it by "Ideas." These ideas are—(1) Simple ideas, or *Percepts*, of Animal life; and (2) General ideas, or *Concepts* pertaining to Man. Still the gulf remains; but to bridge it over Mr. Romanes suggests a third idea, or intermediate stage, which he calls *Recept*. Here is his definition: "A Percept is a simple idea, and means *taking wholly;* a Recept is a complete or generic idea, and means *taking again;* a Concept is a general or abstract idea, and means *taking together*—that is, a Concept is a recognition of things previously cognised. Recept implies no intellectual activity, being a mechanical combination of simple ideas, such as children and animals form." As children grow and reflect, their idea of Man becomes Conceptual. Thus the whole distinction between Man and the brute creatures consists in the presence or absence of Conceptual thought—that is, of Self-Consciousness. So far, we find little to differ with in all this, but we must

* "Mental Evolution in Man," by George James Romanes, LL.D., pp. 16, 17, 177 (Kegan Paul and Co., 1889).

confess our inability to see wherein a simple Idea or Percept can, by *mere repetition*, make any upward advance whatever.

Again, the same writer says that Geologists treat the absence of Fossil Apehood as of little importance. Dr. Darwin did not think so; indeed the fact seems one of the most damaging proofs we have against Man's descent from the Monkey. Instinct and Mind are absolutely incommensurate; that is, they are not of one kind. The proposition of the extreme Evolutionists, that Instinct can evolve itself into Mind, is not merely an illustration of *Degree*, but a change of *Kind*. But we are indebted to Mr. Romanes for one consideration. He more resembles the Eagle than the Ostrich. By this new attempt to bridge the gulf he has practically consented to recognize it, while many writers seem to ignore its existence; and shows that at any rate he possesses the courage of his opinions.

Mr. Romanes supplies several interesting anecdotes of brute intelligence. Those bearing upon their remarkable recognition of Man's wishes as revealed in his face and gestures (the Animal's substitute for lack of language) confirm largely what we have said in our Lecture VI. on that important point.* One or two of them we may quote very concisely. To illustrate the gesture-signs of monkeys, he relates how a male monkey begs the body of a female which had just been shot: "The animal came to the door of the tent, and, finding threats of no avail, began a lamentable moaning, and by the most expressive gestures seemed to beg for the

* "Mental Evolution in Man," chaps. vi. and viii.

dead body. It was given him. He took it sorrowfully into his arms and bore it away to his expecting companions." Here is another: "Sir Wm. Hastie records that one of his officers . . . saw a female monkey running along the rock with her young one in her arms. He fired, and the animal fell. On his coming up she grasped her little one close to her breast, and with her other hand pointed to the wound which the ball had made above her breast. Dipping her finger in the blood, and holding it up, she seemed to reproach him with having been the cause of her pain, and also that of the young one, to which she frequently pointed."

We here see evidence of great Instinct-intelligence, but none of Reason, if we omit the *inferences* of the narrator. In the first case, we see an illustration of the force of Instinct, which we have defined as *limited* to the preservation and well-being of the animal and its offspring, or, as in this case, its sexual affection. Probably it did not know that its mate was quite dead, for Mammals, as a rule, neither bury nor seem to take an interest in their dead. In both cases the most remarkable feature is the way in which the creatures carried the female monkey and the infant monkey. Apes do not usually *carry* their infants or wounded mates in in their arms exactly as women do, because this infers that they *walk upright* upon their hind legs, thus acting the part of a biped, the peculiarity of Man only. We wish the narrators had been more explicit on this point. For the rest, we think that the extraordinary talent of reading gesture-signs, which some animals possess, may extend to the use

of such gesture-signs by themselves. In the case of all such anecdotes, in which the element of Wonder exists, we must bear in mind the *natural* and unconsciously sentimental tendency to exaggerate less or more. In both these cases the kind-heartedness of the gallant Officers is evident. Perhaps they felt some remorse at the result of their thoughtless action in firing the shots.

We may be permitted here to refer to the persistent manner in which we have insisted upon the importance and *necessity* of keeping clear the distinction between Instinct and Mind, which we show to be incommensurate. This is a point entirely at variance with the argument of Mr. Romanes throughout. Our *Two Kinds of Truth* TEST shows the logical objection to his theory. Ideas of Mind (Man) belong to the UNIVERSAL sphere, and are immortal; Instinct-*Ideas*—if such a word can be used at all, seeing that they possess no Mental element—are mortal, and belong to the NATURAL sphere; and, consequently, the two are incommensurate.

How, then, and at what point of the process of Creation does *Mind* come upon the platform? Dr. Cope states the difficulty clearly enough. It is a question, he says, "of the material of the mind, the original raw-stuff out of which mind was made."

Amongst other considerations he tells us that "first in order come the sensibilities of the animal, which we have traced to simple Consciousness, or *stimuli*, upon notice of which he immediately begins to move." Evidently the sensibilities are not *first* in order, if Dr. Cope has traced them to simple Consciousness; but he seems to have forgotten that this

is the very question waiting for an answer—Whence and when comes Consciousness or Mind? Again: "The primary stimulus of all kinds of motion is necessarily touch. If a stone falls upon the tail of some animal which has a tail, he immediately gets out of that vicinity. . . . Then, the animal is constantly assaulted by the dire enemy of beasts, hunger, an instinct which is evidently universal, to judge from the actions of animals." This seems to have fashioned in large part all forms of Life, from the least to the greatest, from the most unorganized to the most complex. "Each exercised itself for the purpose of filling its stomach with protoplasm. . . . Among primary instincts must be included that of reproduction." *

Dr. Cope further writes: "So you see it is a matter of necessity that Mental phenomenon lie at the back of evolution, provided always that the connecting link of the argument—that motion has ever affected structure—be true. Of course the development of Mind becomes possible under such circumstances." Not very obvious, we think. If Mental phenomena produce Evolution, to say that Evolution may develop Mind is reasoning in a circle, is it not? But once more, Whence came the Mind which produced the phenomena?

Here he has already reached the development (*i.e.*, improvement or extension) of Mind, while the readers are still waiting, *first*, to be informed of the *creation* of Mind. The only words directly bearing upon the point are those quoted above.

Behind all is Consciousness, and Consciousness is

* "Origin of the Fittest," by Dr. Cope.

just Mind in action, so that to say that Mind is evolved out of Consciousness is like saying that Mind is evolved out of Mind! No doubt he uses the words "Sensibility" and "unmodified Sensation," but he adds "*or* Consciousness," which, in his view of this subject, seems the proper word; to us the other two rather tend to confuse his statement without improving its sense. We must here hold this point as referring to the human mind only. If, however, as seems evident, he includes the lower animals, then his whole argument is without foundation, and is to us all together inadmissible, unless the phenomenon he refers to is not "Mental" but merely Animal-Consciousness. In that case it may be supposed that the beginning, not of Mind, but of *Life*, is his question. In both cases, however, his proposition remains devoid of proof.

In truth, the word "Consciousness" seems to be Dr. Cope's *bête noire*. It has a definite and well-understood meaning as an abstract entity, and is generally used in Philosophy as being equivalent to the word Mind; but sensibility and sensation are not Entities at all—they merely represent qualities, conditions, or relationships.

The confusion arising from the use of the general word Consciousness seems another result of not distinguishing between Mind-Consciousness and mere Instinct-Consciousness, *a distinction as important and complete as can exist*. The first is another name for Mind, or faculty of Mind itself, while the latter is mere Animal life, or Instinct. As previously pointed out, Consciousness proper is just another word for the *Human Mind itself in action*, and in argument

must always be so understood. Instinct-Consciousness in the lower animals, on the other hand, is always simply an expression used for the Animal Senses in action. So also *sometimes* in Man, but then always under control of his Reason.

A recent writer clearly distinguishes Animal-Consciousness from Mind-Consciousness. "Life and [Instinct] Consciousness, whatever may be their nature, are inseparable from the Natural Universe. They follow its laws and are the results of its laws. . . . Soul-Consciousness as we see it exhibited in Man is a fleeting and infinitesimal phenomenon in the *eternity of All.*" * That is, the one is Mortal, the other Immortal. An eminent French writer says, "It is notorious that while the corporeal existence is undergoing a perpetual process of renovation, molecule by molecule, mind preserves its identity." Another recent writer describes Consciousness as "a concomitant of change, that is, of the contact between one state and another. A feeling which, if we *always* have, we should not be conscious of." † This is excellent as regards Instinct-Consciousness both in Animals and Man, but totally inapplicable to Mind-Consciousness. Thus my Mind may be at rest, as in profound sleep, and supposing my blanket falls aside, I immediately *feel* an impression of cold, and *Instinctively* draw it back, an operation of which my Mind (Consciousness) has no knowledge whatever. For this action the proper word should be simply "Instinct-Consciousness."

* W. H. Mallock in the *Fortnightly Review*, Nov. 1890.

† "A New Era of Thought," by C. Hinton, p. 59 (Swan Sonnenschein 1888).

If Dr. Cope would use the word "Instinct-Consciousness" only, when speaking as he does of the first indication of Life, he would greatly simplify the matter to his readers.

Mere Life, however, has never been proved to be Mind. By the use of the word "Consciousness" only in the one case, and "Instinct-Consciousness" in the other, the reader would come to understand clearly the writer's meaning. The promiscuous use of the word "Consciousness" only perpetuates the existing confusion. In our illustration we have supposed the person asleep, in order more clearly to show our meaning; but even in waking-hours such Instinct-feeling is unceasingly in operation, and generally entirely unperceived by our Consciousness (Mind). *The importance of Instinct in Man is greatly under-estimated.* It is the main guide in our daily life and ordinary work, Mind being almost always merely contemplative, until some new condition or event calls for consideration.

Dr. Cope, in his article on "The Origin of the Will," * again introduces the subject of Consciousness. Two or three sentences only shall we quote: "If there be no inherent power of controlling the attention, and none of restaining the pressure of motive, then there is no Will in any proper sense of the word; and man is an irresponsible automaton." . . . "The common hypothesis, that Consciousness is the product of evolution, appears in view of this primary fact to be irrational; while the converse, that evolution is a product of Consciousness, is far more likely to receive ultimate demonstration." On

* "Origin of the Fittest," p. 487.

these points, we can only have partial agreement. But we will await the "demonstration."

But, in truth, the whole subject appears to be in a condition somewhat resembling that of astronomical science during the period between Ptolemy and Copernicus. The system of the former was of course full of contradictions, and had to be explained and propped up by endless arguments and theories, some of them valuable, although the inductions therefrom were never satisfactory. But on Copernicus revealing his great discovery that the Sun was the centre of our System, and not the Earth, the confusion which had so long abounded disappeared as completely as darkness does before the noonday sun.

And in like manner the confusion surrounding the question of "Consciousness" will, we believe, disappear when men cease to mix up Instinct with Reason, which they necessarily do when they consider Instinct to be the same as Reason, only less perfectly developed—a fatally erroneous assumption, and, as we have seen, entirely devoid of proof.

While the Protoplasm theory has failed to command general acceptance, few holding that it satisfactorily accounts for Life, there is another fallacy in the argument which remains to be pointed out, and one, too, of much greater importance. Dr. Cope throughout apparently assumes, *as if it were a matter of course*, that if he could account for Life he would thereby also be accounting for Mind, and throughout he appears to mix the two so completely together

as, quite unintentionally, to confuse his readers. Here, however, we think, he follows the example of many other Evolutionists.

To the ordinary reader Dr. Cope will appear convincing—not because of his arguments, but because he writes with an apparent assurance of certainty in his conclusions, which carries his reader across vast gaps before they are aware of losing safe ground. Here is a very good specimen: "The Animal life may have *originated* in this wise. Some individual Protist perhaps accidently devoured some of his fellows." [He omits to say whether this Protist was alive. If alive, how could it *originate* animal life? If not alive, how could it eat its fellow?] "The easy nutrition which ensued was probably pleasurable, . . . and soon became a habit. The excess of energy thus saved from the laborious process of making protoplasm was available as the vehicle of an extended consciousness. From that day to this Consciousness has abandoned few, if any, members of the animal kingdom." [Animal-Consciousness, we presume, will be abandoned only at death.] "In many of them it has specialized into more or less Mind. Organization, to subserve its needs, has achieved a multifarious development." Here the confusion, which to us is dense, arises from our again failing to see that Animal-Consciousness *is* Mind. "Specialized" is a climax in his argument!

Now, above and beyond all the other issues in our argument, *the one outstanding point—important a thousand times more than they*—remains: Whence comes Reason, or Mind? Here is a yet higher creation than that either of Matter or Life to

account for. Setting aside Instinct, which, as we have seen, is not an Entity but is mere Animal Life, whence comes Human Intellect (Soul-Mind)? Mind must have existed before Matter, for the conception of Matter without Mind is impossible, and therefore this Mind must have been that of the Supreme Creator. Coleridge "speaks of Reason as . . . the eye which sees Truths transcending sense, . . . indeed regards it as a ray of the Divinity in Man."* Goethe said that "Matter can never exist and be active without Mind."

Geologists tell us that man appeared last of all upon the earth, that is, after earth and all its creatures—his subjects and servants—were prepared for him, their master and lord, over whom he rules with absolute sway, although under certain conditions, or laws of Nature.

"Thus are we led to the culminating point of Man's intellectual interpretation of Nature—his recognition of the *Unity* of the power of which her phenomena are the diversified manifestations. Towards this point all scientific inquiry now tends—the intimacy of that *nexus* between mental and bodily activity, which, explain it as we may, cannot be denied." †

Somewhat in connection with this part of our subject, there is a most remarkable statement made by Dr. Darwin. It relates to the difference between Mind and Instinct, and reveals his consciousness that, if ANIMALS ARE NOT POSSESSED OF MIND, HIS

* "Studies in Poetry," by Principal Shairp (1886).

† Dr. Carpenter's "Nature and Man," p. 208 (Kegan Paul, Trench and Co., 1888).

THEORY OF EVOLUTION WOULD FAIL. His words are—"If no organic being excepting man *had possessed any mental power, or if his powers had been of a wholly different nature from those of the lower animals, then we never should have been able to convince ourselves that our higher faculties had been gradually developed.* But it can be shown that there is no fundamental difference of this kind." * *Now*, on the contrary, *we have seen that no organic being on earth except man is possessed of* ANY MENTAL POWER WHATEVER *and that his powers are of a wholly different kind from those of the lower animals.* Inasmuch as their powers are in no degree mental, but only Instinct-attributes, we submit that it *cannot* be shown that there is no fundamental difference of this kind. The conflict of fact is here complete, but there is no conflict of opinion; for Dr. Darwin, with that candour which so distinguished him, admits that his theory fails *unless it can be proved that the Animals are possessed of Mental power, less or more.* This is a very important point in the great argument, and we have seen that they are possessed of none.

Speaking of Mr. Herbert Spencer, a recent writer has well said that "The leading idea of Mr. Spencer's philosophy is the *Unity of Life* and its development by evolution." Amongst his later utterances is an article entitled "The Factors of Organic Evolution." It treats of the subject in a manner much too minute for general readers. However, the article is of very great interest to Embryologists, especially in regard to the new idea that organic matter is evolved from the outside surface of inorganic matter, and that

* "Descent of Man," chap. iii. (Murray, 1888).

animal organs are evolved from the outside, or epidermis, of such organic matter.

But at the risk of misrepresenting his views, we must content ourselves with very incomplete quotations. Mr. Spencer says, with most commendable frankness: "Biologists in general agree that in the present state of the world no such thing happens as the rise of a living creature out of non-living matter. They do not deny, however, that at a remote period in the past, when the temperature of the earth's surface was much higher than at present, and other physical conditions were unlike those we know, inorganic matter, through successive complications, gave origin to organic matter." * This last point remains without proof and cannot be admitted; but the statement, as a whole, is very important.

Here at last we have a theory suggesting that *Heat*, which belongs to the *Natural* sphere, is the originator of the transformation, but when we next expect the evolution to proceed to the transformation of organic matter into *living matter* and Mind, we are left in the dark as before. Mr. Spencer very candidly says: "In the absence of that cyclical series of Metamorphoses which even the simplest living thing now shows us as a result of its inherited constitution, there could be no *point d'appui* for natural selection. How, then, did organic evolution begin?" The article concludes in a somewhat disappointing matter. It gives no definite opinion, but rather hints uncertainty in the closing lines—'This article . . . will perhaps serve to show that it is as

* *Nineteenth Century*, May, 1886, p. 769.

yet far too soon to close the inquiry concerning the causes of organic evolution." A conclusion in which all will probably agree.

Of course this is greatly better than Dr. Cope's argument, which he confidently assumes to be complete; but our scientific readers will naturally ask, How could *heat* CREATE animal Life? Gentle heat, we know, promotes *growth* in the Vegetable Kingdom; but heat indefinitely increased produces combustion, and is the great destroyer, not only of life, but also of all organic matter as such. The question still remains unexplained, another proof this that Professor Huxley wrote wisely—"Science commits suicide when it adopts a creed."

Here we must repeat that when we state that there never is improvement or development in Animal life, we mean in the natural state, free from the coercion of man, and in no case beyond the limits of mere Instinct. Of course some classes of animals naturally possess much higher intelligence than others. Even in the case of domesticated animals we believe that if two pairs of these, quite young, were taken off to their original wild forest, they would not only fail to show any of the artificial tricks and accomplishments of their parents, but both would exhibit their natural wild habits—as for instance in their nests or lair formation—*exactly* on the model of their species centuries before, or as near thereto as material and situation rendered possible. Of course this could not be by imitation, for they would never have seen such formation in progress. If, on the other hand, we could try (but of course we

never can) a similar experiment with a pair of human children upon a genial and fruitful uninhabited island, and a second pair upon another exactly similar island, these two pairs would eventually make, or build, or construct huts, or other residences *differing* somewhat from each other. The explanation of this evidently is that the animal pairs would both act *exactly* in the same way, the Instinct *Motive* being their *only* guide, without any free will; whereas the human pairs would each exercise their free will (Mind), and choose plans or invent methods less or more different from the other.

We may point attention to another evident fact, distinguishing the *Natural* from the *Universal* Sphere, and Instinct from Mind—that is the fact of Uniformity. In the physical world, for example, we have found that in Crystallization the angle of Ice-spears is *always* 60°; and in the case of Instinct, as we have illustrated above, an animal's actions are *always* the same under the same circumstances—for there is no free will. In the Universal Sphere uniformity does not exist, being incompatible with Free Will generally.

The reader will now see why we have so much insisted upon the necessity of maintaining clear the distinction between Instinct and Reason; and here, by the aid of our *Test*, we propose to show that they are, and *must* be, different in kind.

Bearing in mind what we have already shown as to the existence of two SPHERES of Truth—(1) NATURAL Truths (such as Instinct), which, although true, are *not of necessity* and permanently so, being empirical and arbitrary and subject to change—belonging only

to Time, and so being perishable; (2) UNIVERSAL Truths, which (such as Mind, and the propositions of mental Geometry) are necessary Truths, belonging not merely to time but to Eternity, and so being imperishable.

For Instinct is not an Entity, but merely a NATURAL attribute of Animal Life, physical, and *necessarily ending with the individual animal life;* consequently it must *cease to exist at the death* of that mortal life. On the other hand, Reason, a faculty of Soul-Mind, is a UNIVERSAL *Spiritual* Entity, and as such is necessarily immortal.

That the Mind of Man is immortal is so generally admitted that here it may be assumed. Frederick Harrison writes: "We are not as the beasts that perish. But the social nature of Man is not bestial. It is a subtle faculty, uniting itself with other souls." That the so-called Animal-mind ceases to exist at the death of the individual Animal Life is obvious, for Animal Life and Instinct are *coexistent and inseparable.* The one is not a result of the other, but rather we may say that the two are synonymous. These truths so force themselves upon the mind by their own logical consequence, and the obvious nature of the case, that they may be assumed, at least till some proof to the contrary is found—which, however, we are assured never can be.

Thus, that Instinct and Reason are *absolutely incommensurate* is, we think, true by demonstration.

For many years a remarkable controversy has been going on amongst the various sections of Philosophers, regarding Materialism and Metaphysics—the one party asserting a Physical explanation of

the whole phenomena of the Universe, the other assuming that Mind is the explanation of all. The arguments on both sides are very ably set forth, but no two writers on either side seem to quite agree together! The confusion is complete, and affords an excellent example of the use of our *Test.* The Physical explanations belong to the Natural Sphere, the Mental belong to the Universal Sphere, and thus are consequently *incommensurable.* The two spheres must *first* be separated, and then they may be each examined and discussed intelligibly.

We think it will be found that there lies an unbridged gulf between the two theories of Instinct and Mind, and that one of them must be placed before the other. Mind, as we have seen, must exist before Matter, and this explains the possibility that the whole Solar mechanism, "including the works of Nature, and this chain of physical causation which stretches through the ages, may have been designed and caused by 'Divine Will' at the beginning." * So also it may be said that "Paradise Lost," Watt's Steam Engine, and the Sphinx statue, were designed and caused by the Mind (or Will) of their respective authors, John Milton, James Watt, and the ancient Egyptian sculptor of Ghizeh. That is to say, they existed mentally before they existed physically.

* "Natural Theology and Modern Thought," by J. H. Kennedy, B.D.

ELEVENTH LECTURE.

BELIEF IN DEITY AND IMMORTALITY MORE UNIVERSAL THAN CIVILIZATION—THE MOST ANCIENT PEOPLES—PROFESSOR SAYCE—THE INFINITE.

TO the Man who cannot accept the truth of Immortality this Life must appear an unmeaning mystery. There are, however, some truths, even the most obvious, that cannot easily be demonstrated by argument. I now write at noon; the sun is concealed by clouds, but no one present will doubt that I write by his light; however, were a scientific denizen of some different system, who had never seen a cloud or a clouded sky, suddenly to appear, perhaps I should fail to prove that fact to his satisfaction. Immortality seems to be one of these truths, which Tennyson refers to in speaking of "Truths that never can be proved."* Professor Seth of St. Andrews,† while believing that Immortality is a conviction *necessary* to the permanence of Morality, does not think that it can be demonstrated by Philosophy. Well, supposing this to be so—which is not clear—is there one thinking being among ten thousand whose mind does not *feel* its

* Dr. Johnson once confessed that "about the *evidence* for the Immortality of the Soul, one would like more."

† "Hegelianism and Personality," by Prof. Seth (Blackwood and Sons, 1887).

truth? Tennyson sets the question in a new light, thus:—

> "Thou wilt not leave us in the dust;
> Thou makest man he knows not why,
> He thinks he was not made to die;
> *And thou hast made him: thou art just.*" *

We are told that in a discussion with Cicero, in ancient Rome, Cotta said, "You philosophers will have reason only. I must therefore set my reason against yours, and I tell you that you with your arguments make doubtful what without argument is not doubtful at all." † To this class the arguments about Immortality largely seem to belong.

That there are in the present era a few men of eminence who disbelieve in a state of future existence beyond the grave, or rather who *doubt* it, is, however, true. The subject is one of first importance, and we will now proceed to inquire as to the belief of the most Ancient peoples on this point.

Memphis, the oldest capital of Egypt, has completely disappeared. "Of its palaces, temples, shrines, its pillared courts, its obelisks, its fountains, its splendid citadel, its sculptured temple of Ptah—the trophy of early Egyptian architecture—not a stone remains." So writes a recent traveller. "But," continues this writer, "the Egyptian's idea of Spirit and *Immortality* has triumphed over time. . . . *The tombs remain as their eternal witnesses.* . . . The embodiment the Egyptians gave to their idea of an *eternity* was its justification. . . . The city of the dead remains and tells its story." Stretching

* "In Memoriam," i.

† "Short Studies on Great Subjects," by J. A. Froude, M.A.; Third Series (Longmans).

some twenty miles from north to south, something of its extent and character can still be guessed. It may be said that its soil is largely composed of human dust. "The Egyptian 'Pharaoh,'" says M. Maspero, "is really a visible god, a god become flesh. . . . Man by his body, god by his soul. Pharaoh being the intermediary between heaven and earth." Here belief in Immortality is clear.*

The histories, so far as such exist, of the Phœnicians† and also the Hittites, support the view that the more remote hints we obtain indicate a purer religion than those less remote, while all indicate less or more directly a prevalent belief in *Immortality*. The same may be said of the Fire-worship of Persia, and that of the somewhat fabulous Zoroastrians.

Of recent years, much new light has been thrown upon ancient Babylonian history, by a class of Philologists such as Professor A. H. Sayce. If their views are correct, we must add many centuries to the hitherto received Chronology of the World. Chaldæa, instead of being one of the oldest nationalities, was only the successor of two prior contemporary nations, named Accadian and Sumerian, who were said to be the inventors of Cuneiform writing. We have no reliable record of these times. Most of the records that have come down to us are obviously based on Traditions and Legends, or other older literary productions. "The great Epic of Gisdhubar is little more in its present form that a redaction of *earlier* poems relating to the Hêraklês of Erech. . . .

* "Life in Ancient Egypt and Assyria" (Chapman and Hall, London, 1892).

† "Phœnicia," by George Rawlinson (Unwin, 1889).

Thus its story of the Deluge shows clear traces of having been compounded out of at least two older manuscripts, in one of which the catastrophe was ascribed to the Sun-God, in the other to Bel." * The magical texts " reach back to a period when the Semitic conception of a Supreme Baal was utterly unknown—when, indeed, there was no definite conception of a god at all." [Of course this can only mean *unknown* to the authors of the texts.] However, " the world . . . was peopled by supernatural powers, each of which was . . . a spirit." This Spirit was that which manifested Life: the stereotyped conclusion of the old Accadian exorcism is, " Conjure, O Spirit of Heaven! Conjure, O Spirit of Earth!" This distinction evidently indicates a belief in *Immortality*. However, Dr. Sayce says: " I must here diverge in order to emphasize the fact that very few of the earlier texts of Sumer and Accad have come down to us in their original form." †

These peoples, who possibly had been early occupants of the valleys of the Tigris and Euphrates, are supposed to have originally come from Ur of the Chaldees upon the Persian Gulf, as to which we will afterwards refer. It was to the Accadians that the beginnings of Chaldæan culture and civilization were due. Their language and features were different from those of the Semites, the Chaldæan-Babylonians, and Assyrians, who succeeded them. They are represented to have been Magicians, with considerable knowledge of the Stars. Possibly this arises from our misunderstanding their hymns as

* The Hibbert Lectures, 1887, by Prof. A. H. Sayce, pp. 326–7.
† Ibid.

suggesting some mystic importance in the number *seven;* but the most remarkable fact, if it can be so called, connected with them is their having no knowledge of a One God, and being without image-worship. This evidences an *extreme* antiquity, possibly greater than even the Egyptians can show, evidently anterior to the epoch of Sun-worship. For their belief in Spirits, as distinguished from *material* Idols, indicates higher and purer conceptions even than those of the Sun-worshippers who succeeded them. No doubt they may have finally *become* Astrologers and superstitious, by mixing with the Semitic Chaldæans, Fire-god and Sun-worshippers; but they bequeathed to these successors an *advanced educational knowledge.* This appears from the fact that their descendants or successors, the Chaldæans and Babylonians, were known as *educated peoples generally*, more so than the Assyrians, who conquered them, and carried off their literary riches to Nineveh.

About 2000 B.C., the Accadian was finally superseded by the Semite, and before long the Accadian language itself became extinct. The beginning of Semitic supremacy (Babylonian-Chaldæan) was marked by the reigns of Sargon I. and his son Naram-sin, who established their seat at Accad, where they founded an important library." * The frequent use of this word indicates not merely a knowledge of letters but an accumulation of literary writings. "The announcement of the existence of ancient libraries in Babylonia and Assyria containing grammars, dictionaries, and reading books came upon the world as a surprise." Sargon's dynasty was soon

* The Hibbert Lectures, 1887, p. 18.

overthrown through the conquest of Babylonia by Khammuragas, from the mountains of Elam. The period of Sargon of Accad is elsewhere given by Professor Sayce as B.C. 3700 (p. 21 of his Lectures). But there is great contradiction and uncertainty about the Chronology, and much difference among the learned on this whole subject. Professor Sayce even confesses that there is "difficulty connected with our needful dependence upon the broken tablets of Assurpani-pal's library. . . . None of the tablets that are derived from it are older than the eighth century before our era. . . . We are generally told to what library of Babylonia the original text belonged, but we look in vain for any indication of date."

Professor Sayce's estimated date of 3700 B.C. received a singular corroboration from Egypt. Professor Edouard Naville, of Geneva, delivered a lecture in London (July, 1889) upon the historical results of his excavations at the ancient city of Bubastis, the sacred city of Bast, the Cat-headed goddess. Remains of the great temple of Bast, described by Herodotus, have been discovered. The monuments ranged over a considerable period, from the time of the fourth Egyptian dynasty (supposed B.C. 3700). M. Naville discovered the royal inscriptions of Cheops and Cheferen, the builders of the first and second Pyramids, and thus throws some light upon an obscure portion of ancient history—the time when the Hyksos or Shepherd-kings reigned in Lower Egypt. He inclines to assign these invaders Babylonian or Mesopotamian origin, associating their inroads in Egypt, in the twenty-third century, with the invasion of Babylonia, B.C. 2280, by the Elamites.

In a more recent publication M. Naville has given us a fuller description of the Bubastis ruins. He says: "Up to the present day we have not found in any part of Egypt monuments as old as the second Dynasty. Historical monuments properly speaking, only begin with the fourth Dynasty. . . . The names of Cheops and of Cheferen are written in hieroglyphs eight inches and eleven inches high. The style of the engraving is beautiful. . . . The beauty of the hieroglyphs with which his name is written at Bubastis," is another proof of the high development of Egyptian Art existing in his time. The first king of the sixth Dynasty was Pepi I. "This King has also been discovered at Bubastis. . . . Pliny informs us that Pepi raised an obelisk at Heliopolis." We presume the fine one still standing there is that which was erected by Usebtsen II. Thus Pepi "was a worshipper of Tum, and a more fervent adorer of Hathor." "The great foundation of Denderah was found on decayed rolls of skins of kids, of the time of the followers of Horus. It was found in a brick wall in the reign of the King, beloved of the Sun, son of the Sun, Lord of diadems, Pepi, living established and well, like the Sun for ever." *

There is in the National Library at Paris an ancient papyrus manuscript, perhaps the oldest extant, said to be written in 3350 B.C., which contains maxims of the most lofty character. There have recently been placed in the British Museum two ancient Oriental specimens of cuneiform inscription. One is upon a portion of a massive libation bowl, said to be of the time of Entana, a remote king of Babylon, and to

* "Bubastis," by Edward Naville (Kegan Paul, 1891).

which the date of B.C. 4000 is by some assigned. This is of course questionable, but a curious interest is felt in these inscriptions from the singular position in which they have been discovered. This was in digging the foundation of a house in St. Paul's Churchyard!

Dr. Sayce, after his return from a more recent visit to Egypt, furnished us with another piece of Ancient history. "A discovery," he writes, "has been made in Upper Egypt, which . . . has most important bearings on the history." On the higher bank of the Nile is a long line of mounds, now known as Tel-el-Amarna, which cover the remains of an old Egyptian city. "In the fifteenth century B.C., Amenophis III., who carried the arms and influence of Egypt as far as the banks of the Euphrates, married a Syrian princess named Teie, . . . daughter of Tuisratha, king of Matanni. . . . Teie brought with her into Egypt Semitic followers, and a Semitic form of faith." This included belief in *Immortality*, which belief was evidently not new to the Egyptians. M. de Rougé * considers that the belief in one Supreme God and in the Immortality of the soul was never completely lost in Egypt, though it was probably confined to a few of the learned class. They worshipped Baal under the symbol of the winged solar disk, familiar to us on early monuments of Western Asia, and adored under manifold titles as the visible image of the Supreme "Lord of Baâl." For several centuries the Hittites, a warlike and powerful nation, whose territory was situate between Syria, Palestine, and Egypt, were

* "The Nations around Israel," p. 47, by A. Keany, London (Macmillan and Co., 1893).

often engaged in wars with the latter country. They were eventually defeated, about 1544 B.C., and the spoils on that occasion show that they possessed an advanced civilization, with vast wealth in gold and an abundance of chariots and horses, and other elements of luxury. This involves advanced knowledge in the mechanical arts, and education generally. Their worship was that of Baalim and Asheroth—inferring a belief in Immortality.

Amenophis IV., Pharaoh of Egypt, who married another princess of Syria, endeavoured to impose his Asiatic faith upon his Egyptian subjects, and the great officers of state bore names which proved them to have been of Canaanite or Phœnician extraction. A struggle ensued between himself and the powerful priesthood of Thebes, the result being that he left the capital and built a new city farther north, in a new style of architecture. In its centre was the palace of "the great King." His name he changed to Khu-u-Aten, and he carried with him the royal archives and correspondence. This consisted of clay tablets with cuneiform characters in the Babylonian language.

The correspondence was found about three years ago! It shows that in the days of the eighteenth Dynasty *literary intercourse was freely carried on between all parts of the Eastern world.* There must, therefore, have been then existing *numerous schools* for education, as well as large libraries, probably existing from many centuries before. Dr. Sayce says "a vivid light is cast on the name of the Canaanitish city Kirjath-Sepher, or 'Book-town.' . . . At all events, the discovery of the tablets of Tel-el-Amarna shows

that writing was well known and practised in Palestine *before, probably long before, the days of the Exodus, or the introduction of the Phœnician alphabet*, and that, therefore, the earlier records of the Old Testament need not have been so dependent on tradition as is ordinarily supposed."

Dr. Schliemann found "Beads of Baltic (not Sicilian) Amber in the prehistoric tombs of Mykenæ," indicating commerce then existing between the Baltic and the Mediterranean, and a consequent literary correspondence, "and," adds the Rev. A. H. Sayce, "that the wealthy Amorites of Lachish adorned themselves with the product of the northern sea." * That the Egyptians had considerable knowledge of Canal systems is evident from the accounts and the remains of ancient Payous, a large province of Lower Egypt, on which was supposed to be the somewhat mythical Mœris.† Mr. St. C. Boscawen stated that among the Tel-el-Amarna Tablets one mentioned the word "Urusalem, and the City of the Temple called Marru (Moriah), showing that long before the Exodus the spot had been a place of worship."

The letters of Tel-el-Amarna were written "by the kings and governors of Babylonia and Assyria, Mesopotamia, and Eastern Kappadokia, Syria, and Palestine, . . . and fix the date of the correspondence to about B.C. 1430, Palestine being at that time a dependency of Egypt."

The rise of the nineteenth Dynasty marks the reaction against the policy and principles of Khu-u-Aten, and the successful revolt of the Egyptian

* "Palestine Exploration," January, 1893, p. 25 (London, A. P. Worth).
† "Payûs," by Major Brown (London, 1892).

people, when the Semite was crushed or expelled. "It is accordingly in the founder of the nineteenth Dynasty that we look for the new king 'which knew not Joseph.' The Oppression did not last for centuries; at most it could have covered a period of a hundred years. . . . At last, therefore, we have found solid standing ground . . . for the event which issued in the Exodus. These tablets . . . cannot be the only ones of their kind. They bear witness to the existence of similar libraries in other parts of the civilized world." *

We make these quotations, not only on account of their importance, but because they at last give us a date (B.C. 1430), at which early period there is shown to exist a high state of literary civilization, and indicate a preceding period, probably *long anterior* and of higher culture. Do we find a higher, or even an equal degree of literary advancement in the East existing thousands of years later?

That the belief of these several ancient peoples in Immortality was generally held may possibly be questioned; but in some Ancient Texts their many references to Hades, and the fact that they prayed they themselves might live "for ever" hereafter in "the land of the silver sky," seem to remove doubt on the subject, irrespective of numerous other evidences. It thus appears that among the most ancient peoples a belief in *Immortality* was less or more clearly held. A French writer, resident in China, writes: "Having by the everlasting solidarity of generations established the immortality of the

* "Letters from Palestine before the Age of Moses," Sept. 1882, by Professor Sayce.

soul, the Chinese considered it contradictory that its separation from the body should cause it to lose any of its attributes.*

As for the numerous savage and cannibal tribes discovered in modern times, all seem to have had some belief in a future world, less or more distinct; and of all the nationalities presently existing upon the earth there are none who seem altogether ignorant of this truth of *Immortality*. A recent writer † well observes "that rudeness of form is no evidence of age"; and another says, "Much uncertainty hangs over the whole of the pre-historical question regarding the appearance and habits of primeval man; still less have we any grounds on which to form conclusions regarding his mental, moral, and spiritual capacities, and his relation to those civilized races which, both in the Old and New World, have left us admirable proofs of high mental endowments, and of powers of constructive art." ‡

On this subject the human remains found in the Auvignac cave in France, described by M. Gartet, afford grounds for inferring that the aboriginal cave-dwellers practised funereal rites indicating a belief in Immortality.

We extract the following sentences from Dr. Beal's book relating to Indo-China Buddhism (A.D. 645): "The Master then preached to them about the future punishment in Arichi of those who gave themselves up to murder, robbery, and impious sacrifices, and other evil deeds. How would you

* "China," from the French of G. Eug. Simon, p. 41 (1887).
† Sir J. W. Dawson.
‡ Prof. Edw. Hull's "Geological History," p. 146 (1887).

then risk the woes and the long-during Asankheya (the lowest of the Buddhist Hells) of ages for the sake of this body of yours, which is but, in point of time, as the lightning flash or the dew of the morning. . . . The earnest desire of Hiuen-Tsiang was to behold the future Buddha and dwell with him in Tusita Heaven." * Nothing seems more difficult than any *direct* proof of Immortality; but nothing would be easier than to multiply evidence of a general belief in it. The natives of Mexico and Peru, when discovered by Pizarro, held this belief; and their predecessors in prehistoric times evidently did so also. It would appear, moreover, that they combined with it the practice of human sacrifices.

In this connection we will fortify ourselves here with the opinions of various Poets and Philosophers. Chateaubriand says: "In the Elysium of the Ancients we find none but heroes or persons who had been fortunate or distinguished on earth. . . . Poverty, Misfortune, and Innocence were banished to the Infernal Regions." †

In Homer's "Iliad" (B.C. 900) we read of the dying Patrocles:—

> "He faints, the soul unwilling wings her way—
> Flits to the lone, uncomfortable coast,
> A naked, wandering, melancholy ghost." ‡

Again, of Hector his wife says:—

> "Thou to the dismal realms, for ever gone!
> And I abandoned, desolate, alone." §

* "Life of Hiuen-Tsiang," by Samuel Beal, D.C.L., pp. 89 and 217 (Trübner and Co., 1888).

† "Génie du Christianisme."

‡ Book XII. Pope's translation.

§ Book XXII.

According to Kant, "God is a necessary conception of thought—an irresistible belief of the Soul." Hence his famous Trilogy—"God, Virtue, Immortality." Socrates, although he refused to worship the gods of his country, was no Atheist, neither was Plato, Cicero, or Epictetus, who, while they may not have believed in *such gods*, yet enjoined men to worship in the established form. They thought it wiser to comply with the laws than to contend,* and all point to a belief in Immortality.

Jean Paul Richter (A.D. 1763) said that "He who finds a God in the physical world will also find one in the moral, which is History. Nature forces on our hearts a Creator—History a Providence. . . . I could with less pain deny Immortality than Deity." † Voltaire said: "If there were no God it would be necessary to invent one." Even Dr. Darwin spoke of the "strong and almost intuitive belief in Immortality." Victor Cousin (1792) wrote: "God is doubtless the author of the world, but He is especially the father of humanity: His intelligence is ours. So that our justice and charity, related to their immortal example, give us an idea of Divine justice and charity; there is between Him and us a living and sacred tie." ‡

There is another strictly logical test which we may apply to the belief in Immortality and in a great original Creator. We have seen that such belief is entertained not by theologians only, but by almost universal consent, even of the most advanced

* "Natural and Revealed Religion," Dr. Clarke, p. 180.
† Carlyle's "Essays."
‡ "Modern Philosophy," p. 100 (Clark, Edinburgh).

thinkers. The exceptions are, we think, few in number and not exceptionally eminent. Now, if such Creator may be judged only by His own visible creation, we must concede to Him—first, Power, and second, Wisdom—not such as we would concede to any created being, but Power *absolutely unlimited*, and, by inference, perfect Knowledge and Wisdom also. Our Minds cannot logically conceive any limits whatever to His existence and attributes.

There is much difference of opinion as to Aristotle's belief. As a heathen philosopher, he was in advance of his time—not a worshipper of idols, but speaking of *Nature* as a Deity. We think he was a believer in Immortality, but this is questioned. There is much obscurity, if not contradiction, in his writings, and some doubts exist as to their entire authenticity.

Speaking of the Human Spirit, Goethe recognized in it powers "capable of indefinite growth and expansion, and did not doubt that there is an invisible realm in which, after it has fulfilled its mission in the present world, it passes to new and higher destinies." * Coleridge, a great poet and philosopher, is thus described by Carlyle: "A sublime man, who alone saved his crown of spiritual manhood, escaping from Materialism . . . with God, Freedom, Immortality still his—a King of Men." † Byron wrote of—

> "A fit abode, wherein appeared enshrined
> Our hopes of Immortality."

An absolute disbelief in Immortality is probably

* G. J. Romanes, in the *Contemporary Review*, February, 1891.

† "Goethe," by James Sime (1888), p. 187.

much more rare than we generally think. Thus David Hume (b. 1711), when in grief at the death of his mother, said to the Hon. Patrick Boyle, "Though I threw out my *speculations* to entertain and employ the learned and metaphysical world, yet in other things I do not think so differently from the rest of mankind as you may imagine." * In the year 1766, Hume thus spoke of his friend J. J. Rousseau: "Rousseau is not what you think him; he has a hankering after the Bible, and indeed is little better than a Christian, in a way of his own." But we quote his own words: "My failings make me but too sensible that man is but half alive in this life, and that the life of the Soul begins at the death of the body."

"It appears," says a friendly critic, "that the immortality of the soul means for M. Renan nothing more than the beneficent memory left by a noble life upon humanity."

To quote M. Renan's words: "The Ideal must remain the ideal; it must fear lest it soil itself by contact with reality. . . . The man absolutely without prejudice would be powerless. . . . Our disagreement with persons who believe in positive religions is, after all, purely scientific; at heart we are with them all. We have only one enemy, which is theirs also—vulgar materialism, the baseness of the interested man." "Somewhat similarly Montaigne was a good deal less sceptical in practice than in theory. Indeed, his scepticism was only a convenient mask." †

* Dr. A. Carlyle's "Autobiography," p. 278.

† "Horæ Sabbaticæ," p. 141, by Sir James Fitzjames Stephen (Macmillan, 1892).

"What evidence have we," it has been asked, "that there is anything in Man that is immortal? His reason waxes and wanes as does his body." * The fallacy here is quickly exposed by the application of our TEST. Man is a duplex creature, and as such he waxes from infancy to Maturity. Subsequently his body, which belongs to the NATURAL sphere, and is mortal, gradually wanes and dies. His Mind, which belongs to the UNIVERSAL sphere, is consequently immortal, and generally brightens, but never either wanes or dies. Shrouded as it is in a decaying body, it may seem to be waning, but it is only gradually ceasing to act through the senses as these organs decay. But the light of reason does not decay.

> "The Soul's dark cottage, battered and decayed,
> Lets in new light thro' chinks that Time has made." †

"It is observable," says a well-known French historian, "that in all ages and in every country the several nations of the world, however various and opposite in their character, inclinations, and manners, have always united in one essential point: the inherent opinion of an adoration due to a Supreme Being." ‡

Sir John Lubbock writes: "The same spirit runs through Oriental Literature. The earliest Sanskrit drama . . . speaks of the Mighty Yama, who judges the dead and the conscious soul."

* "The Record of a Human Soul," by H. G. Hutchinson, p. 82 (Longmans, 1888).

† Poems by Waller (1680).

‡ "Ancient History," by M. Rollin, Principal of Paris University (trans. 1817), preface.

Belief in God and belief in Immortality always seem to infer each other. The truth of Immortality appears rather to have been assumed as a *necessary* corollary to the belief in a Supreme Being than formally insisted upon by the ancient pagan nations. Max Müller has said, "Without a belief in personal *Immortality*, religion surely is like an arch resting on one pillar—like a bridge ending in an abyss." Another recent writer says, "In Nature disorder ever and anon recurs, and with it the thought that in some deep sense the world where it reigns is not the true home of man." *

Eternity, Infinitude, and all such words are to us words only, since the mind is unable to grasp the ideas for which they stand; and the great intellectual efforts so constantly made to assist our conceptions of their full meaning only prove how vain are such attempts. "Mystery," wrote Carlyle, "is everywhere around us. . . . For the rest, let that vain struggle to read the mystery of the infinite cease to harass us." We do not say that the mind cannot conceive the truth both of Eternity and of Infinitude, because, as it may not be difficult to show, *the mind cannot possibly conceive the reverse.* But, as Tennyson has expressed it—

> "Thou hast not gain'd a real height,
> Because the scale is infinite.
>
> 'Twere better not to breathe or speak,
> Than cry for strength, remaining weak." †

Aristotle declared that the Infinite is beyond the

* "The Moral Ideal" (Trübner and Co., London, 1889), p. 298.
† "The Two Voices."

reach of human understanding. Sir William Hamilton says: "The Infinite and the Absolute cannot possibly be construed to the mind. . . . Finite cannot comprehend—contain the Infinite." * Comte says: "All the sciences tend to lose themselves in the multiplicity of the Universe, where every path leads to the Infinite." † To think of them *in parts*, as some have proposed, would be simply a contradiction in terms, seeing that Infinity can have no parts. Principal Caird says: "Beginning with an Infinite or Absolute Cause, you might conclude to finite effects, but you cannot reverse the process. All that from finite effect you can infer is a finite or contingent cause, or at most an endless series of such causes." ‡

Conic Sections and Arithmetic (both branches of pure Geometry) seem to point us to a faint adumbration of their *import*—mere shadows, but perhaps the nearest we can have. (1) The Curve of the Parabola (as also of the Hyperbola), continually approaches to the straight line, but, however far it is produced, can never touch it. (2) In Arithmetic, any given number may be perpetually divided by 2, but can never thereby be exhausted. (3) The period of a repeating decimal fraction may be added on for ever, but the value of the expression, though constantly approaching that of its corresponding vulgar fraction, can never attain to it. So also with squaring the circle. The calculation may be ever approaching it, but the Circle remains unsquared.

* "Lectures on Metaphysics," vol. ii. p. 527 (Blackwood, 1859).
† Prof. Caird's "Social Philosophy of Comte," p. 22, 1885.
‡ "Philosophy of Religion," p. 137 (Maclehose, 1880).

The study of these facts is mental; they cannot be shown in any material form.

"Forces are for ever at work," says Mr. Froude, * "integrating and disintegrating the Atoms of which the inorganic world is composed. Only in the intellectual abstractions of Geometry, or in Numbers which have no existence save in the conceptions of the intellect, do we find propositions which we can predicate with certainty unalterable truth. Whatever has its being in time and space is under conditions of transiency." This is an illustration of our Argument: the former being UNIVERSAL, the latter only Temporal and therefore NATURAL truth.

The scientific reader of Carlyle "must have noticed the surprising accuracy of the metaphors he derived from Science." "He laid the whole body of the sciences under contribution." "Quite as clearly as the professed physicist, he grasped the principle of Continuity, and saw the interdependence of parts in the stupendous Whole." To him the Universe was not a Mechanism, but an Organism—each part of it thrilling and responding sympathetically with all other parts. Igdrasil, "The Tree of Existence" was his favourite image: "Considering how human beings circulate each inextricably in communication with all, I find no similitude so true as that of a tree. Beautiful, altogether beautiful and great. 'The *Machine* of the Universe'—alas, do not think of that in contrast!" †

* "Origen and Celsus," by J. A. Froude.

† "New Fragments," by John Tyndall, F.R.S., p. 885 (Longmans and Co., 1892).

TWELFTH LECTURE.

EVIDENCE OF SCIENCE—LOGIC—BUDDHISM—DARWIN, SPENCER, MILL, CARPENTER—HAECKEL'S EMBRYOLOGY—DEVELOPMENT—CREATION—LIKE PRODUCES LIKE—THE ANIMALS AND MAN—THE SOUL.

CARDINAL NEWMAN once said: "I do not want to be converted by a smart syllogism. . . . The heart is commonly reached not through the reason, but through the imagination, by means of direct impressions . . . facts and events." We believe, however, that one of the current fallacies in the world of thought is an unreasoning prejudice against Logic. The cause of this obviously is that the results of many so-called Logical arguments have proved wide of obvious Facts. But in no such cases was Logic at fault; for the premisses on which the syllogism was founded were either not true or else incomplete. Nothing tends to keep the Mind free of doubt or *confusion* so much as Logic, but care must be taken to start from a sure foundation. Logic, like Geometry and Arithmetic, belongs to the *Universal* Sphere. It may be affirmed that Logical conclusions are always true, and conversely that no "Truth" is true unless it be logical, no matter by what authorities it may be supported. Another reason of this prejudice is that Logic has frequently been associated in the mind with mere

Dogmatism, with which, however, it has no necessary relation whatever; indeed, it has been observed that in any discussion the illogical disputant is generally the most wordily dogmatic. Geometry (but not mere Natural Science, as Mr. Mill supposed) affords the best illustration of pure Logic, because its Propositions are necessarily founded on previously *ascertained* facts.

Whenever a conclusion is propounded which is obviously illogical, we may assume that there lurks in it error of some kind which must be searched out. If not, we shall be building a tower with a rotten foundation-stone, which will prove fatal to its stability when the pressure of the hurricane comes, no matter how excellent its architectural design, or how rich its ornamentation. As a recent writer says, "A prehistoric fallacy of idea and term is certainly sufficient to wreck any critical process." *

Logic alone may be used as a Test of the truth of any Religion. Thus Buddhism owes its wonderful progress in the East to its proclamation of a universal Catholicism, but its contradictions and puerilities strongly appear when we study it logically. Some Religions may ask our acceptance of doctrines and facts beyond our Mental comprehension or experience, but when these clearly are, as in some cases, *logically contrary to human Reason*, founded on UNIVERSAL facts, they cannot be allowed.

Buddha seems to have arisen in India at a period of religious apathy in the East, similar to that when Mahomet, twelve hundred years later, took the more

* "Essays Towards a Critical Method," p. 181, by J. M. Robertson (T. Fisher Unwin, 1889).

Western nations by storm. M. Renan wrote that "the fundamental idea of Buddhism is the pre-eminence of Man over all the rest of the universe. The thought of the Sage moves the earth, meditation creates the world." * Unlike Mahomet, Buddha propagated his views, not by the sword, but by teaching and example—he personally being distinguished for simplicity, disinterestedness, and beneficence. His religion, which soon to a large extent superseded the religion of Brahmin in India, and subsequently even that of Confucius in China, was remarkable for the hold it took upon the mind of hundreds of millions in India, China, Thibet, Central Asia, and Japan. "Its founder seems to have been the first Agnostic, yet his followers overlaid its simplicity and inverted its principles, so that its founder, who denied a god, they now worship as God himself!" †

Its literature forms quite a library of contradictions, and appears to be rendered more so by the difficulty of its translation. Buddhists believe in Transmutation, Immortality, and future rewards and punishments.‡ It has now existed in the world for twenty-four centuries, and, according to some authorities, its followers number more than four hundred millions, probably a third of the human race.

Perhaps no better illustration of an illogical religion could be found than in the Chinese—

* "Studies in Religious History," p. 88 (London: Richard Bentley and Son, 1886).

† See "Texts from the Buddhist Canon," translated by Professor S. Beal.

‡ "Life of Hiuen-Tsiang," by Professor S. Beal (Trübner and Co., London, 1888).

Confucianism. A recent French resident * shows that their religion is much older than Confucius. He did not found their religion, but merely consolidated it. Even now their seems no clear definition of its tenets obtainable. It is, however, with several modifications, the religion of some hundred millions of Chinese, and dates from unknown antiquity, thus in length of time surpassing all other ancient *national* religions, as far as known to us.

In a conversation with Diderot, in 1769, the French philosopher, D'Alembert, perhaps the most distinguished literary writer of his day, started the *supposition*, or rather two suppositions, and then evidently believed in them as *matters of fact*, "that, after the destruction of all Life by the extinction of the Sun, a repetition of the development of the plants and animals that formerly existed would recommence with the rekindling of the heavenly body which diffuses force and life. For nothing else is conceivable but that the causes, once again set in motion, should produce the same effects *as they had already done.*" Without attempting any proof he simply assumes that they had already done so. This is an excellent illustration of "begging the question." In fact, D'Alembert thus begs both the major and the minor premiss of his syllogism.

The concluding proposition is true and logical, but *only* provided that the Sun *had been extinguished*, and *also* if it be true that it *had really created the original* plants and animals—two pure assertions yet awaiting proof. It is evident that any proposition

* "China," from the French of G. Eug. Simon (1887).

can be proved, whether erroneous or not, provided that we may assume premisses in this way. If Diderot accepted this logic (which seems scarcely possible), he surely had forgotten his own well-known maxim, "that the first step towards Philosophy is incredulity." In literature he was a giant, but by no means so among scientists; while as a philosopher, his utterances, often paradoxical,* seem, as previously stated, to be frequently unfounded assertions.

As an example, let us give two illustrations of so-called logical reasoning. (1) All allow that the writer of what are called Shakespere's dramas must have been the king of men, a man superlatively wise, an intellectual giant. One party says, it is inconceivable that William Shakespere, a mere playwright of uncertain scholarship and unknown to fame, could be their author, and that the only man who could have written them was Bacon, known as the most eminent genius of his era, and of European fame. Here the conclusion is formally quite logical, yet actually false, being built upon two premisses, apparently warranted, but really untrue and incomplete. Shakespere was our greatest Poet and so endowed with the intuitions of the *Seer*—a very anatomist of the human heart and Mind. Intellectually the two men may have been equal—morally Shakespere was the greatly superior genius of the two. (2) Some one said to Copernicus, after he announced his great discovery, that the Sun was the centre of our Solar System: "If the world were constituted as you say, Venus would have

* "Diderot," by John Morley, vol. i. p. 114.

phases like the moon: she has none, however. What have you to say to that?" Copernicus saw the logical force of the objection, but confident in the fact of his great discovery, he answered: "I have no reply to you, but that an answer to this difficulty will be found." And it was so, for, some eighty years afterwards, Galileo invented the telescope with which the phases of Venus were, for the first time, revealed. But, as the Count de Maistre (by whom this anecdote was related) said, the great astronomer was dead, and saw them not. Here the logic was not at fault, but the premiss, on which it of course rested, was so, because, although apparently true, and at the time admitted to be so, it was really unfounded.

"Logic," said Sir William Thomson, "is to language and grammar what Mathematics is to common sense; logic is etherealized grammar. . . . More ships have been wrecked through bad logic than by bad seamanship." *

There is no name more prominently associated with logic than that of John Stuart Mill. His "System of Logic" was published in 1843, and was hailed by very enthusiastic commendation, especially from the Liberal thinkers and writers of the day, among whom, and, indeed, generally, he was a great favourite. "His main contention is that the Syllogism is a *petitio principii*, the conclusion being, he said, contained in the premisses, and that the real process of inference is from particular case to adjacent particular case." He held that Logic should include the procedure of Natural

* "Popular Lectures and Addresses," pp. 285–6 (Macmillan, 1889).

Science, which other writers on the subject had wisely taken care to exclude, and properly so, for Logic belongs to the *Universal*, while the Sciences are of the *Natural* Sphere. It gives the reader a clear idea of what Science is doing; but it might be urged that Logic "somewhat unduly extends its boundaries when it covers all that Mill makes it cover."

Mr. Mill's desire was to explode the *a priori* view which the Cartesian school held of the origin of knowledge. The latter laid stress on the invariable and unconditional character of the relation between Cause and Effect as a proof that it was mental—not derived from Experience; while Mill held that this relation was purely Empirical, somewhat in accordance with the views of Locke and Hume. "We need not follow him through all the twists and windings of the attempted justification of so strange a position." The question practically reduces itself to a dilemma. He is therefore always trying to get wide-reaching truths out of the changing and fragmentary experience of our three-score years and ten; "the solution is paradoxical, and inadequate to the problem." *

Men of genius may, and, indeed, frequently do and say many illogical things, and sometimes express opinions of a contradictory nature, such as would quickly extinguish ordinary writers. Of this Comte and his admirer, John Stuart Mill, both undoubted geniuses, are examples. Mill is distinguished in Science, Metaphysical Philosophy, Logic, Political Economy, Sociology; and, indeed, he is eminent

* "John Stuart Mill," by W. L. Courtney, chap. iv. (Walter Scott, 1889).

as a thinker on almost all subjects. One of his biographers, from whom we have made some quotations very briefly, says that Logic "especially ought to rest on sounder metaphysical foundations than can be discovered in the work of Mill. If it be true that these foundations include irreconcilable dogmas, then the shiftiness of the groundwork must in time make itself felt in every department of the superstructure." *

In trying to find the cause of Mr. Mill's inconsistencies we must have in view the peculiarity of his education, to which we have previously alluded, and the character of his Mind. His dislike to dogmatic statements made him so very receptive of other men's views that he did not hold truths firmly, and was naturally unqualified to be an authority in a science so mental and positive as pure Logic. He seems never to have realized the fact that there are *Two Spheres of Truth*, and so treated what are simply Empirical, *i.e.*, NATURAL or Temporal Truths, as if they were UNIVERSAL Truths. Hence the confusion into which his famous "System of Logic" led its readers. This work, we think, shows that he was a deep and anxious thinker, and a man of unquestionable veracity; but its title now seems somewhat a misnomer.

The early friendship of Carlyle and Mill was remarkable. There were some points of resemblance, but many more of difference between them. "Carlyle, with all his might, believed in God. 'Might and right,' he said, 'do differ frightfully

* "John Stuart Mill," by W. L. Courtney, chap. iv., p. 81 (Walter Scott, 1889).

from hour to hour, but give them centuries to try it in, they were found identical.'" "Mill was a Necessitarian, if not a fatalist. He yielded to the conviction that concerning the origin of things nothing whatever can be known." "Carlyle was the Prophet of the Latter Days, Mill the Apostle of Benthamism."*

Those who "became acquainted with Mill's philosophy in youth were carried away by its apparent clearness, its love of truth, its dignity, and the large views it gave of human life. Afterwards, as they reflected upon it, they discovered that it was riddled with contradictions, real as well as verbal." † Jevons thought that "Mill's mind was essentially illogical."

Let us apply Logic to some of the extreme Evolutionists' arguments. To those who have studied the subject superficially their most telling argument is that of Haeckel on Embryology. He shows microscopic drawings of the Animal embryos and that of Man at different stages. Those of Mammals have all a singular resemblance to each other, and also to that of Man. He exhibits this circumstance as a *proof* that there is *no* original difference between them! The superficial reader "is readily, but erroneously led to assume that *if so*, then that of the Man must subsequently develop into a higher stage of life, by different surroundings, favourable circumstances, greater lapse of time, or otherwise."

* "Carlyle and Mill," by Edward Jenks, B.A. (George Allen, 1888).
† "Pure Logic," by W. S. Jevons (Macmillan, 1890).

This *seems* a conclusive argument, but let us examine the subject *logically*. We know that there are some minute vegetable seeds so like each other as to be indistinguishable to the eye, but after sowing they produce plants very dissimilar, and *then we know that they were not the same*, and that we were mistaken in thinking so. *Here no one will suppose that these seeds really were the same*, and that they *subsequently* developed "by different surroundings, favourable circumstances or otherwise," into two different plants very dissimilar. Has any one ever suggested such an idea as to plants? But for the sake of argument let us admit (although not strictly true, as improved microscopes may some day show) that there is, as shown by Haeckel, some clear resemblance between the embryos of two different Mammals — say, for example, the dog and the monkey. Now, did any Darwinian ever know the embryonic dog grow or develop into anything but a dog, or the embyro of a monkey into anything but a monkey? It is evidently a universal Law of Nature that like produces only like, and no sane man ever expects a new Mammal to appear amongst his flocks and herds. If he did so, it would be a legal proof of insanity. The fact that the embryos appeared similar is no proof that they really were the same; but *proof* that they were the reverse is found in their results. For we know by *universal experience* that the one contained the germ of the dog, the other one the germ of the monkey. That such germs were not visibly and obviously different is of no logical force, because we *know* from the evidence of our senses and universal experience

that they nevertheless are so.* "As like as two peas" is a current phrase, but is not at all applicable in this question. The two peas are of one kind, but the two germs are of different KINDS, whether we can detect this or not. *Knowledge must supersede both Appearance and Opinion.*

But if this argument holds true as between one Mammal and another, its force is *a thousand times greater* in the case of the monkey and the Man; for in this case we have to cross an absolutely unbridgeable gulf, inasmuch as Man possesses, in addition to the Mammal's distinguishing qualifications, a most important possession, quite invisible. That there is a Soul-Mind, a UNIVERSAL entity beyond all microscopic search (and which we are assured by our TEST does exist), is not disputed. Some questions have been raised as to the point of time when this new Soul-possession is obtained. No one who understands its nature need be told that it is *not new*, or separately obtained. The life-germ of the Man contains it as necessarily *inherent* in itself. It has descended from the parents in an unbroken line of descent even from the first pair, and each germ contains within itself the germ of its next generation, and so on without end, so long as his Mortal life itself continues and propagates, and for ever so far as his Mental Life is concerned.

In this argument of Professor Haeckel's the flaw in its Logic is hid in the careless admission that the embryos "*were the same.*" They are, we *know*, NOT the same, although perhaps to outward appearance they may at first seem very similar. But a yet more

* "In Starry Realms," p. 855.

evident test remains. The Man-infant will speak; the monkey *never will, train it as you may.* Now Language is the index of Mind, and Mind is Immortal. If we apply our TEST to the subject, we see that Mind belongs to the UNIVERSAL Sphere, Animal Instinct to the NATURAL, and the two are therefore absolutely incommensurate.

Agreeing as we must do with much in Dr. Carpenter's book, we are surprised to find him treating the important subject of Embryology in a way which, to us, seems almost equally illogical with Professor Haeckel's. He says: "Man is an animal." "Why should we assume in the case of Man a special *creative exertion* of Divine power, when everything points to a *continuity of the same original plan of action.* . . . To myself the conception of a continuity of action which required no departure to meet special contingencies, because the plan was all-perfect in the beginning, is a far higher and nobler one than that of a succession of interruptions such as would be involved in the creation *de novo* of the vast series of new types." * This word "*exertion*" indicates a most limited and erroneous conception of the infinitude of the great Creator. In *creation* he sometimes speaks—and it is done. As to the supposed interruption of Continuity, there is none because there was no Continuity in the Creation of Man (Mind), a *new* Creation in the universe, as we have seen.

The above is erroneous assumption, for of Mammals there was only one *type*, and there was no "special *contingency*" to meet. Man's creation was

* "Nature and Man," p. 407 (Kegan Paul, 1888).

a *separate* and original creation, irrespective of the Animals. They only resemble him typically *in structure and instinct*, which shows that there was only one Creator; but mentally they have absolutely nothing whatever in common. *Both Creations* were all-perfect in plan at the beginning, but being separate there was no needed *continuity* in the case. Was Xerxes more *noble* because he was a slave to his own laws, than if he could have reserved power to alter a law, however perfect, or to make a new law equally so? But there is here no alteration nor departure whatever by the Creator from his original plan, nor the slightest need for any. *The first man was an original creation, and each human primordial germ contains* WITHIN ITSELF *all the elements of a continuity of the Creator's original plan for Man, including Mind and Immortality.* In like manner each brute germ evidently contains within itself the elements of a continuity of the Creator's original plan for the different species of brutes respectively, limited of course, because only Mortal.

Here some confusion of thought may arise, but only if we hold the *preconceived idea* that Man is Evolved from the lower animals, which is still an unproved assumption.

If we understand them aright, Haeckel and his school hold that Evolution alone accounts for the existence of the Organic world, and repudiate any special purpose or Design. Even chance is self-contradicting by this theory, because in this view Evolution is placed very much in the position of an unvarying, unlimited, and *inexorable* law. Now, although it be not formally put forward as a kind

of personal deity or giant ogre, the logical inference which follows from the doctrine so held is that Evolution must have been going on for ages of indefinite duration, rising from protoplasm upwards, and must *inevitably* continue to go on upwards for ever, unless some miracle interpose; and surely Professor Haeckel's school does not admit miracles!

If so, we ought now to have fossils and specimens of Apes and Men in all stages of evolutionary advancement; and the longer the time required in the process, it is evident the more numerous ought such, as well as living specimens, now to be. *Yet not even one has been found.* Indeed, an important circumstance is recorded, showing the reverse of this. Associated with the remains of various animals, numerous bones of Man were found, included in the breccia of the Cave of Bruniquel, in France. Owen (a great authority) considered the evidence of their contemporaneity clear, and he held that the human skulls there obtained, although of prehistoric antiquity, showed *no indication whatever of an inferior or transitional type.* If the facts be as stated, this evidence is as good as is attainable on the subject.

There is some *apparent* evidence of development shown in the case of the horse's hoof; but Dr. Cope admits what seems evidence of an opposite kind in the monkey. He says, "Between the brains of the lower and the higher monkeys, no difference of function or of intelligence is perceptible."* In or over the Coal measures we have Lignite, which Professor Geikie says is "a compressed and chemi-

* "Origin of the Fittest," p. 149.

cally changed condition of vegetation, and may be regarded as an intermediate state between peat and coal." * That no such changed or changing intermediate condition of Apehood has been found by the Palæontologists is certainly a remarkable and most important fact in this argument.

Herbert Spencer seems more logical, if equally unsatisfactory. He says that belief in Special Creations is "not countenanced by a single fact; . . . no man did ever see a special creation, . . . no one ever found indirect proof of any kind that a special creation had taken place"—the hypothesis "is absolutely without support of any kind." Now, did Mr. Spencer ever *see* a creation by Evolution? No; neither Creation nor Evolution is seen except in its results. Did any man ever *see* "an instance in which an animal of a distinct new species *was being naturally evolved* out of one of an entirely different organization?" We lay stress upon the "naturally," because we must exclude domesticated animals, and all such as are confined or cruelly treated by Man. Besides, there were no *domestic* animals existing during the long past ages of Evolution. That there is no cross-breeding between animals *in Nature* of two different Species is known. Humboldt, using the words of Müller, says: "The different races of Mankind are not different Species of a Genus, but forms of one sole Species:" and Cuvier says, "The human Species appears to be single."

This kind of argument, however, is not very complete; but as to seeing a special creation, we can see around us indirect and circumstantial evi-

* Geikie's "Class Book of Geology," p. 210.

dence that such has been. Mr. Spencer does not seem to distinguish between instantaneous creation, and Creation built up by Evolution with visible Laws, and of deliberate forethought, design, and purpose.

It is to us extremely difficult to define Herbert Spencer's philosophical belief, notwithstanding his voluminous writings and the honest freeness with which he expresses his opinions. But he is evidently a believer in the existence of one Supreme Power. The following seems to us a touching confession of his views on this most important subject :—

"Once more we are brought round to the conclusion, repeatedly reached by other routes, that behind all manifestations, inner and outer, there is a Power manifested. Here, as before, it has become clear that while the nature of this Power cannot be known, while we lack the faculty of forming even the dimmest conception of it, yet its universal presence is the absolute fact, without which there can be no relative facts. Every feeling and thought being but transitory, an entire life made up of such feelings and thoughts being also but transitory; nay, the objects amid which life is passed, though less transitory, being severally in course of losing their individualities quickly or slowly, we learn that the one thing permanent is the Unknowable Reality hidden under all these changing shapes." *

The history of living organisms has been epitomized in the following sentences :—

"Evolution of living types is a succession of elevations of platforms, on which succeeding ones have built. The history of one horizon of life is

* "Principles of Psychology," ii. p. 503.

that its own completion but prepares the way for a higher one, furnishing the latter with conditions of a still farther development." *

Yes, but what is the history of the *first* horizon of Life? for this is the primary object of our search. Mr. A. R. Wallace said, "If a thousand material elements in a molecule are alike unconscious, it is impossible to believe that the mere addition of one, two, or a thousand other material elements, to form a more complex molecule, could in any way tend to produce a self-conscious existence."

It seems to us a waste of time to discuss arguments such as that of Professor Haeckel farther. The explanation of such confusion of thought arises, we think, out of a vain wish to show Evolution as an actual supreme power in Nature, and so dispense with any needed oversight on the part of the original Creator. But it is obvious that special oversight was not more needed in this case than in every other. The application of the "Two Spheres of Truth" Test would quickly clear up this confusion.

In Shelley's "Scenes from the *Magico Prodigioso* of Calderon" there is an argument between the Student and the Devil.

> "*Dæmon.* On impossible
> And false hypothesis there can be built
> No argument.
> *Cyprian.* That there must be a mighty God
> Of supreme goodness, and of highest grace,
> The cause of all things and the effect of nothing—
> One power, one will, one substance, and one essence,
> . . . one
> Sovereign power, one solitary essence
> One cause of all cause.
> *Dæmon. How can I impugn*
> *So clear a consequence?*"

* "Origin of the Fittest," p. 488.

Can the reader impugn this logical exposure of Prof. Haeckel's famous so-called evidence of Man's oneness with the Ape? "Mankind," said Thomas Carlyle, "begins in darkness, ends in darkness; mystery is everywhere around us and in us; nevertheless this wondrous mankind is advancing somewhither, as indeed, for beings that exist in time, by virtue of time, and are made of time, might have been long understood." Referring to the question of the Life-germ in Man as above set forth, a recent intelligent writer * says:—"At birth a child has animal life *and no more*, but as its intellect grows it sub-ordinates instinct and acquires a Soul." But this new entity of a Soul cannot be *acquired* except by a *Creation*, and this would ascribe to human Intellect the position of a Creator! Here we have only one more failure in the attempt to cross the unbridgeable Gulf.

He who takes up an illogical position in any argument, however plausible, is like the man who sat upon the branch which he was in the act of sawing off from the tree, or like him who in the rising storm

> "Pulled down the roof-tree of his hut
> To feed the fire."

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* "Past and Future," by Dr. Charles Moore Jessop, p. 268 (London: Kegan Paul and Co., 1892).

THIRTEENTH LECTURE.

A FIRST CAUSE—DESIGN—LIMITATION OF CONTINUITY—ELLIPTICAL ORBITS—THE HUSBANDRY IN HEAVEN—COMPENSATIONS—ADAPTATION—FOOD—LATENT FORCE—GOOD AND EVIL—STEAM ENGINE.

THE Argument of DESIGN is a great question still remaining in dispute, and is one on which only the extreme Evolutionists and mechanical Materialists are at complete variance with other thinkers. It is this:—

Is there evidence of *Design* in Nature and in its evolutions? This, we think, must be admitted by such Evolutionists as believe that there was a Great First Cause behind and beyond Evolution. Can the few who do not admit this disprove it? To the solution of this question the minds of thinking men should now be directed, rather than to questions of obviously less importance in the interests of Truth, the farther discussions of which only appear to "more embroil the fray."

It has been somewhat lightly affirmed that "the Natural Universe is infinite and eternal, all its changes being the result of all-pervading and eternally unchanging laws." Again, "as to the Universe as a whole, no meaning or purpose in it is even conjecturable." These, however, are mere

assumptions, without proof, and advanced by no logical argument or authority, and the converse may be stated with equal reason.

It seems obvious that, if there be no Design, Chance must rule in Nature. Goethe pithily said, "Provision has been made that the trees do not go into the sky"; and Carlyle as pithily adds, "Means are always there to stop them short of the sky!" *

Here again there seems to be a reference to the law of Counteraction, as also to the fact that in Nature there is no law of Continuity. That there is unlimited continuity in the Spiritual or Universal sphere is evident by our Test; but death inevitably extinguishes continuity in the Physical sphere. Immortality is the necessary pledge of the individual continuity of Mind.

Ever since Nicolas de Fevre (1665) pointed out that chemistry was the art of *separations* as well as of transmutations, it has been found that with every increase of temperature or dissociating power, an increased number of bodies has been resolved into their simple elements or component parts. Now what are called simple bodies are reduced, we think, to under sixty. Mr. Norman Lockyer writes: "The question, then, is . . . an appeal to the law of *continuity*, nothing more and nothing less. Is a temperature, higher than any yet applied, to act in the same way as each higher temperature which has hitherto been applied has done?" Or, as he very pertinently asks, "Is there to be some *unexplained* break in the uniformity of Nature's

* "John Sterling," by Thomas Carlyle, p. 87.

processes?" * Let our Test of "The Two Spheres of Truth" answer. It tells us YES! there is a limitation. Heat is a NATURAL fact, and it cannot be increased indefinitely. But it possibly may be increased further than has yet been done, till *all* bodies are reduced to their simple elements. It is vain to speculate farther, for a point might *possibly* be reached in a fire-heat so transcendental as to consume *all*, and so Dust only would remain. Was this not the dream of some Eastern Gnostics?

But neither Heat nor Fire is a material *substance*, they are not ponderable, nor can they exist irrespective of Matter; so that such transcendental Heat, having, as imagined, consumed all else to dust, would itself cease to be. *Hence this supposed Continuity of Fire-Heat in every direction would by indefinite increase end in Extinction or Dust.* Every human passion continued to excess ends in death of the body: even excess of Joy may produce death, as in the case of Leo X. Certain musical sounds end in silence, and excess of Light sometimes produces Darkness. Such arguments seem to become too transcendental, but all these considerations illustrate the fact that there is no continuity of Natural Forces, and that Nature itself is not eternal. Lord Kelvin evidently supports this theory. He says, "It seems most probable that there is for every gas a *limit* beyond which the density cannot be increased by any pressure, however great." †

Let us again take the case of Water. Its expansion by heat is not indefinite, for at 212°

* "Chemistry of the Sun," Preface, p. x.

† "Popular Lectures," p. 400.

Fahr. it becomes Steam. But in an open boiler the indicated temperature of Steam does not rise beyond 212°, if the fire is continued such excess of heat escapes with the steam into the air. The heat may be added to in a closed boiler, but not indefinitely, for it *must eventually* produce an explosion, and be dissipated in the atmosphere. In such closed boiler the heat indicated by the thermometer does not increase in proportion with the increase of pressure. Thus while temperature is 250° Fahr. pressure is 29 lbs. per square inch, while at 280° Fahr. pressure is 50 lbs., at 360° Fahr. pressure is 150 lbs., and at 400° Fahr. the pressure is 250 lbs. It thus appears that Pressure increases at a much higher ratio than Heat, and that in Steam Engine Boilers their strength is a point of primary importance. This increase of Pressure—belonging to the Natural Sphere—is not possessed of unlimited continuity, but is of course dependent on the strength of material. We have already seen that Water cannot be reduced in bulk below a temperature of 32° without setting up a new force of Counteraction producing increase of bulk by crystallization. There is no continuity in Nature. Iron itself may be burned to dust by fire-heat long enough continued, even as water wears the granite rock, also to *dust*, in course of time.

It has been found by Mr. J. Homer Lane that in a globe of any Gas or other substance, the density at its centre is twenty times its mean density, provided only it be of one kind throughout.

The subject of Design is a branch of inquiry into,

which space forbids us to do much more than enter although it is one of great importance. Besides, it is one already discussed by able writers, and is, indeed, more familiar to general readers than such matters usually are. Those who have read "The Reign of Law," will recall the illustrations of Design so clearly drawn from the wings of the sea-gulls and other birds. It is a subject which every intelligent person of observation can study for himself, almost as well as any scientist, and from almost every object in Nature, animate and inanimate.

For example, the very irregularities and obliquities of the several movements of our globe are not only conditions *necessary* to the existence of our System, but *at the same time* are also such as *best* adapt it for the use, comfort, and well-being of its inhabitants. Even the fact that the orbits of the planets are not circles but ellipses is an advantage, for a planet receives more heat and better distributed thereby than if its orbit were circular.* Elliptical orbits are clearly necessary and advantageous as regards climate and health, and contribute to gratify the taste with all varieties of the beautiful, instead of the dull and dreary uniformity which their absence would create. A great anatomist—Bichat—long ago said: "If every one were cast in the same mould there would be no such thing as beauty. If all our women were to become as beautiful as Venus de' Medici we should for a time be charmed, but we should soon wish for variety." Even Voltaire, who was *first* a Wit, was also a free-thinking philosopher and a dramatist. He believed in Design, and although a theist was

* "The Moon," by R. A. Proctor, p. 78 (Longmans and Co., 1886).

not an athiest. He speaks of "the wisdom and beneficence of the Creator, and thanks him for the existence which has allowed the sons of men to contemplate the grandeur and beauty of creation." *

So far as concerns human government generally it may have been truly said, "Behold, my son, with how little wisdom the world is governed!" † but who can truly at any time say so of the supreme government of the Natural World as seen in all the objects around us? The numerous apparent exceptions are, when fully understood, only apparent, as, for example, in the complaint "that of fifty seeds" Nature "often brings but one to bear." ‡ Why, the other forty-nine seeds, apparently waste, are available in many instances for further crops, and in feeding countless millions of birds, beasts, and insects, besides furnishing food and medicines for Man, and serving important uses in Commerce and the Arts. In many cases where seeds would otherwise be lost, Nature provides them with gossamer wings, wafting them in millions over broad seas and parched deserts to aid in feeding the teeming populations of animals and fishes which live therein. What human government can provide for its hungry subjects half so successfully as Nature does for hers? It seems difficult to consider these facts, and not see in them Purpose and Design.

And yet in reference to this kind of so-called "failure" it has been seriously argued that in

* "Life of Voltaire," by Francis Espinasse, p. 177 (London, Walter Scott, 1892).

† Oxenstiern, 1583.

‡ Tennyson, "In Memoriam," liv.

Nature "the prodigality is far more conspicuous than the wise economy of which so much is said." So wrote Mr. G. H. Lewes,* somewhat in imitation of D'Alembert's logic; and we must quote Argyll's rejoinder, which seems complete. He says that "it is altogether irrational to regard such a fact as an exception to the attainment of Purpose in Nature. . . . One purpose of seed-bearing in plants is the reproduction of their kind; . . . . another purpose is the support of animal life. . . . The intention with which a grain of wheat is so constituted as to be capable of producing another wheat-plant is not the less in the nature of Purpose, because it co-exists with another intention, that the same grain should be capable of sustaining the powers and enjoyments of Life in the Body and in the Mind of Man. On the contrary, the power possessed by most plants, . . . of producing seed in a ratio far beyond that which would be required for one purpose, is the *sure indication and the proof that another purpose larger and wider was in view.* . . . This is especially so in corn and food cereals generally. But this is only one example of a class to which an indefinite number of other examples in Nature may be referred." † The fruit and berry-bearing trees afford an example of another kind of double purpose. While the fruit supplies food to man and birds, the real reproducing seed inside the fruit is not thereby necessarily lost; of this the Mountain Ash is a fine illustration. "There are indeed innumerable examples where the meaning

* *Fortnightly Review*, July, 1867, p. 100.

† "The Reign of Law," fifth edition, p. 175.

of 'like failures' is not equally evident to us. . . . But the same argument applies to all."

This *apparent* superfluous waste of supply evidently exists also in the Moral world. "Mr. Austin's rejection of final causes arose partly from a sense of the wanton prodigality with which Nature produces abortive seeds, and flowers to blush unseen—a prodigality yet more conspicuous in the fact that she produces so many men like himself, who have every mental and moral qualification for public usefulness on a large scale, but to whose public usefulness physical infirmities have set a bar." *

Undoubtedly Nature is prodigal of life. The earth, the air, the sea are crowded with living creatures, large and small—the myriad mites and the great rhinoceros and the whale. As already said: from the depths of ocean to the highest mountain-top, every spot where the sun shines is teeming with living forms. There is one exception —Fire, which, instead of sustaining life, destroys it.

If we consider the matter for a moment we must be appalled to think of the inconceivable amount of food so vast an army daily requires. *Not one, Man excepted, cultivates the ground or produces food for itself.* No doubt the earth produces meat for the vegetarian portion of the creatures, but entirely without their aid. All the rest feed upon these, and upon each other, the strong devouring the weaker, and the living the dead, not, however, in any capricious and arbitrary way, but so *designed and regulated* that there is no unnecessary waste

* "Safe Studies," by the Hon. Lionel A. Tollemache, p. 237 (William Rice, London, 1891).

of life. Indeed, the balance between production and waste is so perfect that the loss of one species or its too rapid increase might possibly prove injurious to all. The plague of Voles, which recently overrun the south-west of Scotland, is an example of this. Human ingenuity may do something in cure of the evil, but Nature will do much more. Besides, evil may sometimes result from Man's unwise procedure. The tendency of animals to increase enormously is very striking. Even the elephant "would increase from one pair to fifteen millions in five centuries if no natural check existed." *

This law of supply and demand is a most beneficent arrangement in Nature, since Man only buries his dead. Otherwise, instead of furnishing an enormous amount of food for countless millions of creatures, the putrid animal remains of even a few months' deaths would so pollute the atmosphere and the waters as quickly to poison the inhabitants who live in them. This is either an accidental arrangement, or it shows profound wisdom and design. We think it is obviously another instance of the "Husbandry in Heaven."

Some years ago it was found that the common earthworms had quite effaced the surface of an old sequestered cemetery with their voided worm-casts, covering almost an inch deep even its flat monumental stones. May they not so cover the whole surface of the habitable earth in the course of ages? No doubt they might, if they were not the natural food of other animals which hold them in check. What seems a serious evil often proves

* Bettany's "Life of Darwin," p. 82.

eventually a great good. Thus, in the case both of the voles and the earthworms, the soil must soon be greatly enriched. Here we have another instance of the Law of Counteraction, and of the general fact that in Nature's forces there is no continuity.

Where I now sit, I see four butterflies—gaudy flowers of the air in holiday attire—disporting themselves in the sunshine. For the last half-hour I have been admiring their beautiful but apparently purposeless evolutions as they dance through a quadrille without music, and never seem to tire of their unique gambols. Ever apparently about to collide, they never do so, although continually crowding about the same space. But there is purpose in their large wings and fluttering manner of flight, full of *rapid movements with apparently little progress*, entirely unlike any other mode of flight —so that the numerous birds in the garden may try to catch them in vain, and even the boy with his net-bag finds his sport very much more fatiguing than he reckoned on. It has been suggested that Butterflies escape because none of the birds desire them for food, and Mr. Pascoe, ex-President of the Entomological Society, says "it does not appear that Butterflies are anywhere the food of birds." But the real reason of their escape is the *rapidity of their movements*. We have known them to travel for five miles of road at the rate of eight miles an hour (as fast as one could ride, and they could evidently fly much faster), altogether irrespective of the tenfold distance lost in apparently meaningless gambols. But for their peculiar mode of flight these fragile creatures could not for a single day

escape extinction. There also we see Purpose and Design, as indeed we seem to do in every object and operation in Nature.

Looking to the defencelessness of numerous creatures, and the powerful means of offence possessed by many other species, one would naturally suppose that the latter would in a short time prove the only survivors. A curious anecdote is being circulated which, if true, illustrates this. In Texas, a cow-boy set a bull at a game cock. The fight was long and severe, but eventually the tiny bird was victor by plucking out one of the eyeballs of the bull! Every species seems to be provided with just sufficient agility or cunning, and no more, as will enable them to maintain their own share of the earth and its enjoyments, and to accomplish their duties and *fulfil the proper usefulness of their lives, whatever that may be*, without unnecessary fear. This thought is beautifully expressed by our great philosopher, Shakespere—

"*Queen Hippolyta.* I love not to see wretchedness o'ercharged,
And duty in his service perishing.
King Theseus. Why, gentle sweet, you shall see no such thing." *

We may take Hippolyta as uttering the spirit of Nature. And is not a similar thought suggested by Lawrence Sterne's familiar saying that "the wind is tempered to the shorn lamb"?

This balance of wrong and right, of pain and pleasure, of suffering and redress, seems almost a Law of Nature, without which life would not long be endurable. Throughout we must observe how very soon the greatest catastrophes are ameliorated, repaired, and forgotten. So also in the sphere of

* "Midsummer Night's Dream," act v. sc. 1.

Life; if Nature wounds with one hand, in her other she carries a remedy sufficient to cure. In the political world something similar exists; tyranny is redressed by its own violence, and liberty springs out of oppression. Even sympathy with the down-trodden is a valuable amelioration, when the oppressor is confronted and rebuked by the true man. If flesh is heir to "a thousand ills," she is also heir to two thousand ameliorations. "Pleasure and pain, the good and the bad, are so intermixed that we cannot shun the one without losing the other."

It is difficult to imagine any stronger proofs of Wisdom, Intelligent Purpose, and Design, than these several considerations indicate, both in Physics and in Mind. Even Aristotle speaks of "*Nature*" as working towards a definite purpose.

There are apparent exceptions, which, however, are perhaps only apparent.

Let us take one other illustration of Design—that of Beauty and Utility in Nature's works, as compared with those of Man. All Nature's works harmoniously combine beauty with utility, but the first result of Man's work is to mar the beauty and harmony of hers. "Everything is good as it comes from the hand of the Creator," says Rousseau; "everything deteriorates in the hands of Man." Even his great engineering works — railways, tunnels, fortifications, quarries, and gold mines—are comparatively ugly, and it is only by Art, an ornamentation borrowed from Nature, that their bare unsightliness is concealed. Even Nature herself begins at once to weave a covering—a beautiful veil of flowers and verdure—for the wounds man

makes upon her bosom and outlines. The best works of Art and Genius are all but conceptions suggested by Nature. Schiller has told us, "That which we feel here as beauty we shall one day know as truth;" and Rousseau says, "The good is but the beautiful in action." The most beautiful forms are those of the human person, and the famous Orders of Architectural beauty in the ancient columns and arches were evidently originally suggested by the palms and other natural objects.

These beauties of Nature in outline and form, so eloquently taught us by John Ruskin, are the special delight of man—as such, the mere animals regard them not. Whether visible or mental—

> "Beauty is Truth—Truth Beauty—that is all
> Ye know on earth, and all ye need to know."*

So also the Sublime in Nature is in close harmony with Man's mind, but to this feeling the Animal nature is dead. For Man's eye alone Nature spreads out her charms. The beauties of the landscape, the grandeur of the towering Alps, the music of the forest, "the resounding shore," the snowy islands of cloudland, the glories of the setting sun—these are the charms of Nature with which the mind of Man loves to hold converse; but to these, and to all the boundless stores around, the animals are alike blind and dumb.

Somewhat in connection with these ideas of Beauty and Utility, is it not a fact that man cannot naturally share his joys with the irrational creatures, nor they theirs with him? On the contrary, we observe that animals in a state of Nature

* Pope.

generally shun man with fear and dread. To Man the mere thought of such general companionship would destroy his ideas of Poetry and the Beautiful, and all that tends "to render life delightful." *

This is no argument properly speaking, but it appears to be an indication that there is really no relationship between them further than this, that both are formed of earth, and alike bear marks of a *common Creator-Architect* in their structure, *although certainly not of a common Creation.* Their Life is obviously of a different *kind*, there is evidently a profound gulf between them, undefined and immeasurable.

If some Animals and Man have somewhat similar bodily structures, it proves nothing to us beyond the circumstance that this structure is Nature's *Typical* one for Mammals, but so varied that each and all have the *best adapted for their respective conditions of life on the Earth.* But they are in no case the same: for example, the fore-limbs of the Gorilla are *very much* larger, and otherwise differently framed, yet still the very best suitable for *its use* in climbing trees. The structure of Man's hand is unique in Nature; no other hand *can* handle a tool by any amount of training. Yet had arms and hands such as Man's been *best* for the Gorilla's use, there is no obvious reason why they would not have been given to it. Man's arms are better adapted for cultivating the ground, and a thousand other purposes positively useless and impossible to any Animal. Indeed the hand of Man is one of the most wonderful pieces of mechanism in existence.

* Thomson's "Seasons."

Here are some of the grand outstanding distinctions of Man. He only is made to walk erect; and he only can kindle a fire. Were Man descended by Evolution from the Ape, would not some savage people be discovered, in process of development not yet complete, still walking on all fours, or devoid of language, or otherwise retaining some beastly physical disability? Or, on the other hand, would not some *advanced* Ape be found walking erect, and nursing its young in some way more like that of a Woman? We do not mean by imitation, but *naturally;* indeed imitation was impossible when Evolution began, for then no Man existed to imitate. Man only can use and make tools; and he only can cook his food; he only can improve himself and the world around him; and all because he only is possessed of Reason, and further, *because*, so possessed, he only can speak. Another remarkable distinction less often noticed is this. All young animals can walk and find their own food within a very few months, while Man does not reach his maturity or provide his own wants till nearly twenty years old, whether highly civilized or a barbarian!

It has been affirmed that there are human beings so debased by savage life that they are very little superior to the brute creatures. This may appear so, but there is always an impassable gulf between the two. A learned professor writes that Rational power and its laws "show that human life, even at its worst, is never so low as animal life, even when it seems lower." To quote an old writer: "By means of Abstraction (Mind) the most stupid Savage, when two objects of sense are before him—the piece

of gold which he wears as an ornament, and the glittering bauble exhibited by the stranger—will barter his gold for the bauble. Not so the brute, which will neither barter, nor borrow, nor lend." Indeed, although it may have perception of form, it has no perception of the æsthetic. Another eminent philosopher writes that "Animals only know particular facts, never generalize or form abstract ideas;" and a recent writer says that "the excellence of Mind lies in the perception of principle." Professor Drummond says, "If a Child and an Ape were born the same day, the last will be in full possession of its faculties and doing the active work of life before the child has left its cradle." Suppose that a newly-born human infant and an infant ape of the most advanced type were "exchanged at nurse," would the human infant, kept apart from man and running wild with its foster-mother, grow up without a ray of Human Reason? And would the ape-infant, brought up and educated with every advantage of a child of the family, show any sign of human intellect or *human speech*? In both cases surely not; although we should not expect the boy to turn out quite another Romulus, and found another Rome! To say, therefore, that Man *ever* sinks to the same platform as the irrational animals is, we think, an unwarranted assertion, but the high condition of instinct and intelligence with which some animals are endowed as compared with the most savage and degraded intellect is apt to give rise to the misconception; these two, Instinct and Mind—the Endowment and the Entity—being incommensurate.

The question of the *original* creation of Sex is one of which Naturalists have as yet failed to give us any satisfactory scientific explanation. Even the most careful investigations fail to find the law of its evolution,* so we must wait for more light. Mr. Oliphant says, "There is no more potent argument in favour of Design in the order of the Universe than is supplied to us by the existence throughout it of the sex-principle." Professor Lockyer has well said that "no doubt the future progress of science will show that we, after all, are looking through a glass darkly, and are not yet face to face with the whole truth. We must all of us be content to have our work criticised and expanded by future work, by researches carried on with greater skill, and with more elaborate methods and higher views, while it is certain that we shall get a much higher and much richer truth out of further inquiries."

The argument of Design has been, in some rare cases, turned somewhat in this way. Seeing there is so much evil and suffering of all kinds in the world, the Designer of it must have been malevolent! It is indeed true that the existence of evil is one of those mysteries generally held to be insoluble. Now if Nature is, as appears, really Benevolent, it is *possible* that but for Man's Freedom of Will, Evil would not exist in the world! This appears very paradoxical, but we think it is logical. For if not free, Man himself would be good by *necessity*, and thus a mere machine without blame or merit—an irresponsible

* "The Evolution of Sex," by Prof. Geddes and J. A. Thomson, 1889.

creature. And so also of the Angels, higher beings than men. We are told that a number of them sinned by rebellion, and were cast out of heaven. They also possessed free will, and hence their responsibility, for these cannot be separated.

Are the evils which exist in the world not the result of human action, especially in the majority of cases of suffering and premature death? Have not wars, the slave trade, drunkenness, ambition, cupidity, selfishness, culpable recklessness, passions and other causes occasioned more unhappiness, cruelty, crime, and loss of life than what Coroners have called "the visitation of God" has caused, and that with no compensating benefits?

This subject has been discussed a good deal of late. Julia Wedgwood says: "We cannot but allow that some part of character is the inevitable result of circumstances." Again, "If to be good means to choose goodness, it must also be possible to choose evil. . . . We find it urged as a great moral discovery, that human Free-Will relieves the Divine Creator of responsibility for the evil of the world!" * Leibnitz, as well as Du Bois-Raymond and others, believed that the chain of physical causation is not influenced by the human Mind, and that the chain of Moral causation was not influenced by Matter; but that the two series are independent of each other. Professor Sanday, in writing on Greek influence and Christianity, says: "There was the same perplexity on both sides in reconciling the goodness and justice of God, and so accounting for the presence of Moral evil. . . . On both sides the compatibility of good-

* "The Moral Ideal," p. 289.

ness with justice was asserted . . . and on both sides went the assertion of Free-Will." *

We are aware that here we are treading upon somewhat sacred ground, which many writers seem by general agreement to avoid by merely overleaping it. This ignoring of the argument, indeed, appears to give some air of plausibility to the suggested idea of injustice or malevolence on the part of the Great Creator, which History generally, and Human Reason almost universally, contradicts as inconceivable. On the contrary, does it not appear that, in addition to Free-Will, he provides amelioration, compensations and natural limitations, if not redress, for Man's evil deeds and their results?

We venture to think that this question is not altogether insoluble by Reason, nor does it contain in itself mutual contradiction; therefore we do not intend to ignore it. We believe that all apparent contradictions arise from our continually forgetting the *absolute* nature of God's supremacy in the Universe. The three points of this question are: (1) The Grace and Goodness of God; (2) the Existence of Evil in the World; and (3) Man's Freedom of Will. We hold that all three exist, each free of interference by the others; not only in fact, but, except the second, of Necessity. Man's Will being free, he can choose either Good or Evil. If he chooses Evil he does so freely, and not of necessity. Hence evil may and, we see, does, exist. If God has endowed Man with perfect freedom of Will—his "gift of gifts the best"—it is clear that he could not arbitrarily prevent man's unfortunate choice of

* *Contemporary Review*, May, 1891, p. 686.

evil without *withdrawing* this Divine boon altogether. But to do so would be to contradict Himself, and to reduce Man to a state of mere Serfdom, without choice, and so irresponsible. Let us consider the inevitable result of such withdrawal: the Method of the benignant Divine Government of the World thwarted; Evil already prevalent and unredressed; and a race of Men re-established in the Earth under conditions new, and, so far as we know, quite unprecedented in the Universe. Neither merit nor demerit would then be known, and Men would live an uneventful life—a race of ignoble puppets. But the subject is one requiring a new Milton to set it forth, and we must leave it with the Reader for his calm consideration.

The Duke of Argyll, who has long given much attention to the subject of Man's Freedom of Will, entirely differs from us. We believe the following is his recent utterance on Human *Character* and *Conduct*: "There is nothing to object to or deny in the doctrine that if we knew everything that determines the conduct of a Man we should be able to know what that conduct will be. That is to say, if we knew all the motives which are brought by external things to bear upon his Mind" [which we never *can*], "and if we knew all the other motives which that Mind evolves out of its own powers, and out of previously acquired materials, to bear upon itself, and if we knew the constitution of that Mind so perfectly as to estimate exactly the weight it will allow to all the different motives operating upon it" [which we never *can*], "then we should be able to predict with certainty the resulting course of conduct. This is true, not only as an abstract conception, but as

a matter of experience in the little way towards perfect knowledge along which we can now travel. We can predict conduct with almost perfect certainty when we know character with an equal measure of assurance, and when we know the influences to which that character will be exposed. In proportion as we are sure of character, in the same proportion we are sure of conduct." Is this not reducing reasoning Man to the level of unreasoning animals?

If for the word *Man* in this extract we substitute *Animal* and for *Mind* we substitute *Instinct*, the statement it contains will apply to the Character and Conduct of the Animals generally. They are the *slaves* of Motives, while *Man is not.* He is possessed of both Reason and Conscience, which are not Motives but which can overpower Motives of every kind by the exercise of Free-Will as already shown.

This question of Character and Conduct, however, is one subject to some confusion from considering it without keeping in view Conscience. The former two belong to the *Natural* Sphere, the last to the *Universal*, and consequently could over-rule the others, which, however, it frequently fails to do so, showing an unhealthy condition of the Mind.

We fear that some theological readers may suppose that our views of Man's freedom of will lead to a mechanical construction or basis for his conduct, and consequently to the ignoring of their doctrines of Divine Grace. We cannot enter upon the discussion as to "Sufficient Grace," so fully set forth in Pascal's "Provincial Letters," but we freely concur, not only in the need but in the actuality of such aids. There is an apparent opposition here

between Free-Will and Divine Grace, but it is only apparent, because such Grace may act *in and by* the Conscience influencing Man's Free-Will—it may be ofttimes to him unconsciously.

But if we cannot soar in the higher Sphere of *Universal* Truth with unsinged wings, we may attempt the lower in the *Natural* Sphere of Human Life. Individually considered, if we should find ourselves deprived of Free-Will—that is of independence, of self-reliance, of Morals, and of all that constitutes the dignity of Manhood—Life would become aimless, without hope or responsibility, and with a perpetual feeling of restraint. There could then be no looking forward to either praise or blame, in short, we should lead a life of mere intellectual monotony scarcely worth living, for "simplicity and grace come with Freedom."

Dr. Hatch has said, "Just as Epictetus and the later Stoics had made freedom of will to be the specially divine part of human nature, so Tertullian answers Marcion's objection, that if God foreknew that Adam would fall He should not have made him free, by the argument that God in his goodness in making man necessarily gave him the highest form of existence, that such highest form was the 'image and likeness of God,' and that such image and likeness was freedom of will. . . . There is still a large margin of unsolved difficulties." * But we cannot

> "Take upon us the mystery of things,
> As if we were God's spies." †

Seeing that Freedom of Will is the absolute ruler

* "Hibbert Lectures," pp. 282-3 (Williams and Norgate, 1888).

† "King Lear," act v. sc. 3.

of Man's conduct, it seems difficult to account for the inebriate. He is generally, perhaps, always willing and anxious to avoid strong drink, but the bad habit he has imperceptibly, although willingly, acquired renders him almost powerless to refrain from its abuse. Before he is aware of the fact he has become its slave, and has ceased to possess his former manliness of character. Pledges the most sincere and promises the most solemn, and even the entreaties of those most dear to him, have become worse than vain. They possibly may avail for a short time, but only to be again and again broken, with ever-increasing loss of independence, self-respect, and self-reliance. How is this to be accounted for? Simply by the fact that his Mind has all along been undergoing a process of slow poisoning, and by his own act he has been destroying his Free-Will. He has, in fact, been committing *Mental Suicide*. His Freedom of Will is under an eclipse, and Conscience is eventually drugged into silence. His case, indeed, becomes hopeless, unless in very rare instances where he is under wise restraint and guidance, such as may tend to awaken Conscience or arouse his pride of manhood. The too much well-intended advice and aids offered him, especially if accompanied by renewed temperance pledges, will only prove renewed failures. "Let us make no vows, but let us act as if we had," said a French philosopher. What is required is some stirring of manly pride and self-reliance, and the feeling of independence and liberty such as may reanimate his Free-Will. The *governing* principle of man's Life must ever be his Freedom. Indeed,

this characteristic seems to prevail in Nature generally. In Norwegian forests the stately pine tree, straight as a spear, proudly waves its head aloft, spreading its roots ever wider as the winter storms increase. But let us essay to strengthen it by some unyielding support, and it will, when the great hurricane comes, break across at its stay.

We cannot here discuss this abstruse subject more fully. Indeed, our chief reason for considering it at all is to illustrate the vast importance of the Free-Will theory in its entirety, in the study of Moral Philosophy.

As to the evils of life, we think Mr. Lang has said, "We are never so happy, nor so wretched, as we suppose." Novalis wrote, "There are properly no misfortunes in the world. Happiness and misfortune stand in continual balance. Every misfortune is, as it were, the obstruction of a stream, which after overcoming this obstruction, but bursts through with the greater force." *

"No one," said Lamartine, "ever riveted the chain of slavery round the neck of his brother, that God did not secretly but irresistibly weld the other end of the chain around the neck of the tyrant."

Shakespere tells us that

> "The gods are just, and of our pleasant vices
> Make instruments to scourge us." †

again—

> "We may gather honey from the weed,
> And make a moral of the devil himself." ‡

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* Carlyle's "Miscellaneous Essays," vol. ii. p. 67 (Chapman and Hall, 1867).

† "King Lear," act v. sc. 3.

‡ "King Henry V.," act iv. sc. 1.

It was he who wrote :—

> "We, ignorant of ourselves,
> Beg often our own harms, which the wise powers
> Deny us for our good; so find we profit
> By losing of our prayers." *

And Baxter said: "Many things in life are like frost and snow, enemies to the flower, but friendly to the root."

By a careful study of these considerations we may come to say with the Egyptian soothsayer—

> "In Nature's infinite book of secrecy
> A *little* we can read."

And could we all "Find in loss a gain to match," we should never again hear re-echoed the question—"Is Life worth living?"

This unmeaning question, "Is Life worth living?" is, indeed, not so often heard from the sufferer by misfortune as from the mere modern Epicurean or Dilettante. He finds even the luxury of trifling or of pleasure begin to pall upon the senses, or otherwise the *ennui* of existence becoming unendurable. Thus the "ills of Life," real or imaginary, are evidently more equally shared amongst men than many complainers suppose.

There is still another view of the subject, of an entirely opposite kind, which is seldom considered. How rarely are the joys and pleasures of Life, even the highest and purest, realized up to our anticipations. We notice such things only to further emphasize the truth of Immortality, by pointing out

* "Antony and Cleopatra," act. i. sc. 2.

the utter unsatisfactoriness and *incompleteness* of the present Life, in all circumstances.

It is remarkable that everything and every force in Nature is made quite suitable for its normal purpose, and no more. The Tree resists the ordinary storm, but when the exceptional hurricane comes the forest shows a number of trees, few or more, prostrated—some torn up by the roots, some broken across the main trunk, others stripped of branches, others of leaves, thus showing an exactly proportional strength in their several parts. The Earth is one vast Laboratory, a grand Chemical Arcanum, in which organic and inorganic forms are continually being reduced to their elements, and as continually being reconstructed in new forms. A perpetual battle is going on between decay on the one hand and renovation on the other. The Air, the Earth, and the Sea, alike are ever actively at work in pulling down and building up. Thus "the vegetable world may be said to promote a kind of circulation of nutrition between the chemical and the animal kingdoms of nature." Under the sea other chemical transformations take place, more out of our observation, but we know that great Coral islands are continually being built up in the ocean by very diminutive zoophytes—enough even to change our geographical maps. This battle is not limited to the Natural world, but exists in a more important sense in the Moral. From the dawn of time there has apparently been waged a perpetual contest between Light and Darkness, Good and Evil, Right

and Wrong. It is typified by Cain and Seth, and is carried on now as fiercely as ever by Truth and Falsehood with varied success. A battle this long since begun which

> "Though often lost
> Is ever won,"

and in which victory for Truth seems eventually certain.

But, as already said, the proofs of Design surround us everywhere, and we will only farther notice one rarely considered, but of great importance, namely that of the Latent Forces of Nature. The subject is somewhat more purely scientific than we care to handle, but we will try to illustrate it by a familiar example. Coal contains Potential Force, but it is *Latent*, unless the coal be heated to a certain point. When burning it suddenly unites with the Oxygen of the atmosphere, and, ceasing to be Latent, becomes an *Actual* flame—a Heat-Force of great importance. Here the composite mineral has been resolved into its constituent elements, to wit—(1) Carbon; (2) Oxygen; (3) Hydrogen—but in various proportions. In this act, called Combustion, it gives out Force or Motion by creating Heat—Motion and Heat being correlative Forces. Nothing finally remains but a little earth or ash, and a smoky vapour, chiefly Carbonic Acid, while the Coal, as such, no longer exists, and its Latent Force is *now* resolved into Heat.

This Heat best converts itself into motion by the use of the greatest of all *Tools* called the Steam Engine. The Water in the engine-boiler is converted

into steam by the Heat, and this confined Steam, by virtue of its great elastic pressure, *solely caused* by and increasing with increase of heat, produces a revolving motion by the intervention of the cylinder, condenser, and crank. It is a mistake to suppose, as almost all do, that a new Force or power *is obtained by the Water being resolved into its constituent elements. This does not take place.* Steam is not a constituent of Water, but simply and entirely Water still, in a new form, *i.e.*, vapour, instead of fluid. For, unless where there is a blow-off, the whole Steam is condensed (by the loss of its heat, from contact with some cold surface) back again into Water pure and simple, and none of it is ultimately lost; so that *no* POWER *whatever is got out of either Water or Steam.* Nothing can be made of nothing, neither can such a *new* mechanical Force be obtained unless by the *consumption* of some material possessed of Potential Force, as in the case of coal, wood, petroleum, or other carbon and gases. But there is no *consumption* of either Water or Steam. Here, therefore, the whole power of the Steam Engine is derived from the Coal alone; the Water and Steam have no power *of themselves*—not more than the ocean cables have of the Electricity which they merely convey.

Perhaps the non-condensing or locomotive engine is a more obvious illustration. In it the Steam is at once blown off into the air, where it is condensed into water again, and falls like rain. Could it all be collected, it would be found that none of the original water supplied to the boiler was lost.

It is well known that although Watts' invention

is a complete Engine there is a *great* loss of its calculated power.* This arises mainly from much of the pressure being lost by imperfect condensation or condensation not at the right moment, faults not greatly obviated by the compound or the triple expansion Engine. The subject has engaged the attention of many eminent men, and numerous experiments have been made both in France, America, and at Home. Superheating has proved of some value but is dangerous, and the evils are still practically uncured.

Perhaps experiments might be tried (1) *by erecting the Cylinder within the Boiler*, or (2) *having the Steam jacket filled with flame instead of steam.*

It has long been known that Water is itself a great Potential or latent Power, and that it can be decomposed or resolved into its constituent elements, and so becomes an Active Force. These are—(1) Hydrogen ; and (2) Oxygen—in nearly equal proportions as to weight, but in volume as two to one. By a galvanic trough, Water has been so resolved into its two constituent elements—Hydrogen gas and Oxygen gas, by which what was Latent may become available Force. This operation, however, on a large scale, is too expensive for practical purposes.

At the present day great expectations are being entertained that, by Electric or other modes, new Forces will be made available for Man's use, destined to effect great revolutions in lighting, heating, motive power, and telegraphy. Scientists have long

* See Opening Address by W. C. Unwin, F.R.S., President, Section G, British Association, 1892.

looked to Water for a new Motive power other than that of gravitation obtained by means of the Water-wheel or the Turbine tools. The Tides possess an immense potential power, but no sufficiently practical and *economical* method of using it has yet been devised. In the recent great advances of Chemistry, and specially of Electro-magnetic science, this desideratum may probably be ere long discovered.

The fact that Water is a Latent Power in Nature, designed for Man's use, as all other Forces are, in enabling him to rule, subdue, and civilize his earthly kingdom, for his benefit and the good of his fellow-men, is evidently a proof of wise prevision and Design. That such powers have been Latent perhaps shows that Nature conceals them from Man only to stimulate his Reason and inventive genius in first discovering and then in using them! This seems to have been Lord Bacon's idea (A.D. 1561).

When we consider that Water and Air, both Latent Powers, rich in Hydrogen or Oxygen, are the most abundant and best-distributed elements in the world, how wonderful would the discovery be of any method of obtaining from their decomposition an active Motive power to speed the vast navies afloat upon the ocean! It is merely a dream, but other dreams as wonderful have turned out realities. If realized, it will form another great illustration of Design. A poet wrote:—

"With caution judge of possibility."

That neither the Steam nor the Steam Engine *produces* Force or Power, they being merely tools

used by Heat in doing so, will be best illustrated by the Archer's Bow. Here we have the crossbow—a branch of wood, capable of elasticity, but having neither latent nor active Force in itself. When, however, *by the vital force of the archer*, it is drawn or bent as far as possible, it *then* attains and possesses this (*once vital*) force—neither less, *nor more*—and when its trigger is touched this force is discharged into the arrow, which flies through the air with the *force which the archer imparted to the bow, and no more*, for the elasticity of the bow itself adds nothing whatever thereto. Its use is merely that of a *tool* by which the vital force of the Man can be much more effectively communicated to the arrow than could otherwise be done. This tool is different from the Steam Engine tool in as much as no energy is obtained by the *reduction* of any Potential Force in Nature as in the engine-furnace, *only* the vital human force being used here. This is not a "Mechanical Power," but somewhat similar; and the same remarks apply to what are so called—as the Lever, the Wheel and Axle, &c. Such "Mechanical Powers" give no new or additional Power whatever to that worked through them, but are valuable as *Tools*, enabling Man to use his vital power to accomplish what without them would be almost impossible, but in their case always by a *corresponding* loss of speed, as all schoolboys know.

The name "Steam Engine" is evidently a misnomer. It ought to be called the "Heat Engine."

Thus it appears that Man can neither create nor *invent* any New Force or Power in Nature. Those

self-revealed, such as the Wind-Mill, the Waterfall, and the Tides, he can less or more appropriate to his service. Those Powers which are Latent, Nature keeps imprisoned, or concealed. All that Man can do is to discover the existence of one, and then try to Invent a key to open its prison cell. Speaking of the Rainbow, Dr. Tyndall profoundly says: "slowly were the laws of refraction dug from the quarries in which Nature had embedded them. I use this language because the laws were incorporate in Nature before they were discovered by Man.*

The Dynamical theory of Heat we owe to Joule (1840), and it has since been treated with great clearness by Professors William Thomson and Tait. They show that "all forms of Energy (Force) ultimately become Heat." The student must refer to such authorities: the subject is one we cannot attempt to treat of here. Confusion has sometimes arisen from using the word Force instead of Energy. When, therefore, we speak of the "Conservation of Forces" we should say "Conservation of Energy."

* "New Fragments," p. 199 (Longmans and Co., 1892).

FOURTEENTH LECTURE.

MAN A NEW SPECIES—ISOLATION AND SAVAGISM—DOUBTFUL POINTS OF EVOLUTION—LANGUAGE AND REASON—INCOMMENSURABILITY—ANIMAL GRACEFULNESS.

IT is no longer possible," says Dr. Isaac Taylor, "to confine the existence of Man upon the earth to a period of six thousand years." * On this point opinion is divided. Whatever may be imagined—for there is no clear proof—as to the existence of a race or races of animals prior to those of the present creation, it is the general belief that the actual race of Man had no predecessor. Goethe said that Man was evidently a new species, and no attempt appears to have been made to show the contrary. Several years ago, some discussion was carried on as to whether the Negro was not of a different race from the white man; but the conclusion generally was that three or four thousand years of exposure to a tropical sun were sufficient to account for his blackness. Dr. J. Beddoe says, regarding the natural colour of the skin in certain Oriental Races, that parts of the skin covered by clothing were very much lighter than those exposed to the sun and air.† Dr. R. Chambers said that "the style of living is ascertained to have a powerful effect in modifying the human figure.

* "The Origin of the Aryans," p. 54 (Walter Scott, London).

† *Academy*, November 28, 1889.

M. de Quatrefages has a strong belief in the unity of the human race, and in the consequent facts that the original home of mankind must have been confined to a very limited space, and that the world as a whole has been peopled gradually by process of migration. He holds that America, like Polynesia, was peopled by colonists from the Old World. According to Professor Godet, "The unity of the human race is no longer subject to any insuperable objection." Dr. Darwin says: "All the races agree in so many unimportant details of structure, and in so many mental peculiarities, that these can be accounted for only by inheritance from a common progenitor . . . Man." *

In one of the most ancient Tablets, supposed to be the Babylonian Legend of the Creation of Man, but of which only broken fragments remain, the following words appear:—(No. 18). "In the mouth of the dark races which his hand has made." On this Mr. George Smith remarked: "It appears that the race of human beings spoken of is the *zalmatga-gadi*, or 'dark race,' and on the various other legends they are called Admi or Adami. It had been previously pointed out by Sir Henry Rawlinson that the Babylonians recognized two principal races, the Adami, or dark race, which was believed to have fallen, and the Surku, or light race." †

Instead of hundreds of millions of years, we now hear of mere tens of thousands as sufficient to accomplish the changes so far as concerns animal life. Professor Prestwich, speaking of the Flint-tool Age,

* "The Descent of Man," ch. xxi. (Murray, 1888).

† "The Chaldean Account of Genesis," pp. 85, 86.

says: "All these phenomena indicate long periods of time. I do not, however, find that we are yet in a position to measure that time. . . . That we must greatly extend our present chronology with respect to the first existence of Man appears inevitable; but that we should count by hundreds of thousands of years is, I am convinced, . . . unsafe and premature." *

The mistakes so often made by too hasty decisions is curiously illustrated in the case of Dr. Darwin, than whom no one has a higher character for cautious deliberation. After his visit to the South American coast, he said to Admiral Sulivan that "the Fuegians were *a set of savages, probably the very lowest of the human race.*" Only a few years afterwards, he wrote: "I have often said that the progress of Japan was the greatest wonder in the world, but I declare that the progress of Fuegia is almost equally wonderful." †

This seems to throw some new light upon the question of the Time required for a great Improvement of any Race, and conversely for great Deterioration. Regarding the latter, it appears that whenever any People or Tribe becomes isolated or is cut off from a *Nationality*, or other centre of Civilization, by any barrier physical or political, its Deterioration will commence and proceed *at a rate—it may be very rapid—and in proportion to the completeness of that barrier.* Finally, no amount of original Civilization will, under such conditions, prevent in course of a few generations, a state of extreme Savagism,

* "Philosophical Transactions, Royal Society," 1862.

† "Life and Letters," vol. iii. p. 128.

and even cannibalism. Contrast the Civilization of the kingdom of Peru on its first discovery by Europeans with the degeneracy of the Fuegian Tribes of the same Continent, or with that of the South Sea Islanders. Or contrast the Civilization of the Kingdom of Abyssinia with the utter barbarism of the tribes of even Eastern Africa. China was for Ages cut off from intercourse with the "outer Barbarians," but being a great *Nation*, with settled government, she has deteriorated in a very moderate degree. So also Japan, whose civilization seems to have been a rapid one.

Looking dispassionately to the visible Universe, Man—even the most untutored man—is unavoidably influenced by a feeling either of awe or of pleasurable emotion, leading him to bow down to some unknown Power higher than he. He will not do so to a Fetish (for Fetishism is always an indication of an effete and corrupt *old* Religion). But in the absence of any revelation or knowledge of a God, he will very naturally do so to the Sun; for to the Sun universal Nature appears to bow. His beams are the great source of heat, and "it is impossible to soil them by any outward touch." The eagle soars far above the clouds to meet his gaze; and all the planets seem only to serve and encircle his throne. Thus Shakespere:—

> "The glorious Sun
> Stays in his course and plays the alchemist,
> Turning with splendour of his precious eye,
> The meagre cloddy earth to glittering gold." *

* "King John," act iii. sc. 1.

And Milton :—

> "Hither, as to their fountain, other stars
> Repairing, in their golden urns draw light."*

How grandly silent is his reign—how free from confusion! To the ignorant, his power might well appear supreme! It is said that on his death-bed, Mirabeau, gazing on the setting Sun, cried, "If he is not God, he is his cousin-german."

Yet this original Sun-worship seems to have become gradually and increasingly degenerate everywhere, probably because error ever tends to increase.

The great theory of Evolution has been so much written upon, that some readers will be perplexed as to the exact points of the subject to which many of our comments apply. To clear this somewhat, perhaps we had better schedule the points under separate heads, to indicate the progress we are making in their examination, thus :—

There are Five points or divisions of Evolution :—

1*st.* That this Earth and other Planets were Evolved from a Gas by Gravitation.

2*nd.* That from the inert Matter of the Earth *Life* is evolved in the form of living Protoplasm, or of some other living thing or being.

3*rd.* That from this living Protoplasm is Evolved a series of Animals, rising from Articulata or Mollusca to the Vertebrate animals—Fishes and Birds—up to the Mammals.

4*th.* The Evolution of Physical Man from the Ape.

* "Paradise Lost," bk. vii.

And *5th.* The Evolution of Human Mind (Reason) from Animal Instinct.

The *First*, although conceivable, is unproved. None of the suggested theories sufficiently accounts for it.

The *Second* is a mere theory of the Physicists, for which no proof has yet been produced.

The *Third* is entertained within certain limits by many thinking men, and is not inconceivable; but much difference of opinion is entertained as to these limits, especially as regards the four *great classes* of Animals. More evidence may be hoped for here.

The *Fourth* is a most improbable theory. If true, the world should now be filled with Apes exactly like men, with Instinct-Intelligence highly developed, but without Reason! In short, it infers a world of dumb Bipeds, as yet unknown to us (unknown not only in the living creature, but also in the fossil state), and incapable of any other than animal actions and enjoyment.

The *Fifth.* This is absolutely impossible, and its falsity is clearly *demonstrated* by the aid of our TEST. They are *incommensurate.*

The question of Language may be considered under this division. Some Evolutionists seem to assume that Instinct *rises into Mind* (Reason) by the aid and exercise of Speech. Can any one define the meaning of the words "rises into Mind"? It cannot be shown that there is any such Evolution of Mind from Language; for, although it may be said that Mind is impossible without Language, it is certainly equally true that Language is impossible without Reason,

being founded upon Abstraction—a function of Mind, and of which the irrational Animals are *entirely* devoid.

"The generation of Mind out of Matter is to almost all men quite inconceivable," * but that communication exists between them is evident. Each one of us is indeed conscious that his mind acts through and upon his physical frame. Thus my Mind is now dictating to my hand this present writing, and my eyes are, at the same time, informing my Mind of its form and colour; but yet, the mode of this mutual communication is altogether incomprehensible to us, while that such communication does exist is self-obvious.

Other Evolutionists have tried to explain the origin of Language by combining it with the origin of Mind, and both are mainly attributed to "Nervous organization" in primeval Man. But this statement is both indefinite and unintelligible. The TEST, however, may be applied to show that the idea is untenable. Nervous Organization is a NATURAL, and Mind a UNIVERSAL truth, and these, as already shown, are absolutely Incommensurate. Language is based upon Abstraction (*i.e.*, Mind or a faculty of Mind), and so by our *Test* it is impossible that either Mind or Language (both being UNIVERSAL truths) could be Developed out of Matter which belongs to the NATURAL sphere.

In a recent work Max Müller, one of the highest authorities on this subject, writes: "By no effort of the understanding, by no stretch of imagination, can I explain to myself how Language could have grown

* "Creation or Evolution," by G. T. Curtis.

out of anything which animals possess, even if we granted them millions of years for that purpose. . . . Taking all that is called Animal on one side, and Man on the other, I must call it inconceivable that any known animal could ever develop language." *

The importance of Language as the grand distinction between the irrational animal and Man, is thus put by Müller: "No Reason without Language—no Language without Reason." Humboldt, whose authority both as a thinker and as a scholar was equally great, declared again and again in favour of the inseparableness of language and thought: "the language of a people is its mind, and its mind is its language; we can never conceive the two as sufficiently identical." Abelard said that "intellect gives birth to language and language to intellect. They belong to one sphere, and it is vain and useless to attempt the separation of the two." †

The word "Incommensurate," so frequently used in our argument, deserves some illustration, as being of great importance. If any two existent things, or any two ideas, be incommensurate, they can be neither compared nor jointly considered, because there is no point of relationship between them. To use geometrical language, they are not in the same plane, or not in the same sphere.

But there is a great difference between what are known as *simply* incommensurate things and those which are *absolutely* incommensurate. For example, a cubic foot, a pound avoirdupois, and a half-sovereign in money, are three simply incommensurable

* "Science of Thought," by F. Max Müller, p. 163 (Longmans, 1887).
† Ibid. pp. 45, 46.

things, and any two of them are so. These, however, all belonging to the *Natural* sphere, are only "simply" incommensurable, because, with ample specification of details, some relationships, such as in value, might possibly be established between them. On the other hand, no such specification of details can possibly be found to make things in the *Natural* sphere commensurate in any degree with things in the *Universal* sphere. Thus Inert-Matter and Mind, Body, and Spirit, are incommensurable absolutely, as also are Empirical or Arbitrary facts with Absolute facts; and Instinct with Reason. A very suitable illustration of the absolute Incommensurable, is shown in the absurd question: "How many Angels could find standing room upon the point of a needle?"

Evolutionists rest their system chiefly upon *insensible gradation and vast periods of time.* Müller writes that "Insensible Gradation is self-contradictory, . . . something which is at the same time perceptible and imperceptible. . . . *Exact science has nothing to do with insensible gradation.* Horace wrote: "We cannot know, or be expected to know, everything;" and these are of the things we cannot know. Knowledge has been thus defined: "It is but to know how little can be known;" and Sir Edwin Arnold says, "To know that we cannot know, is an immense promise of coming enlightenment."

"Fallacy lurks in the word 'Development,' which is now so extensively used, but which requires very careful testing. The admission of insensible gradation would eliminate not only the difference between Ape and Man, but likewise between truth and falsehood,

black and white, hot and cold, a high and a low note in music; *in fact it would do away with the possibility of all exact and definite Knowledge.* . . . True Knowledge is impossible without definite concepts (that is, Number), and without definite signs (that is, Language)." * Truths both NATURAL and UNIVERSAL are, like Knowledge, exact. Carlyle truly said, "It is a mathematical fact that the casting of this pebble from my hand alters the Centre of Gravity of the Universe!" †

Of Evolutionists there are different degrees. Their original leaders, such as Dr. Darwin, were commendably candid. Darwin was a scientific naturalist of great eminence, while otherwise he was a man of judgment, as thoroughly reliable as any other of his contemporary savants. But he did not *know*, nor did he pretend to *know*, that Man was descended from the Ape. Almost all reasonable men seem to admit, and he candidly acknowledged, that the question was not one of absolute fact, or one admitting of decided proof. His theory seems built up upon certain circumstances, disjointed facts, and probabilities, which, taken together, *he* believed sufficient to warrent his conclusions. But none of these facts *proves* his theory, and all the circumstances and probabilities, we think, fail to give a foundation other than mere *opinion*. That is to say, after studying all the conditions of the case, he thought his view was the most probable—nothing more. Professor Cope writes thus of Natural selection: "Each generation would stand exactly where the preceding one did, and the question of Survival

* "Science of Thought," pp. 166–7–8. † "Sartor Resartus," book iii.

would never arise. Selection cannot be the cause of those conditions which are prior to Selection. In other words, Selection cannot explain the *Origin of anything.*"*

Several of Darwin's followers go farther than he, and write and speak as if this theory admitted of a demonstration. If so, we have not yet met with it. It may lie buried under volumes of words; but we believe that practical truths are always simple, and can be made concise and intelligible to ordinary minds. No doubt they all honestly believe in their theories; but it seems evident that they also assume and rely upon important additional discoveries of fossils to bridge over serious gaps in their evidences, which are certainly at present *very far* from complete.

Both sides of the question have been ably discussed, but in writings too numerous and too voluminous for any ordinary reader. There is not amongst Naturalists and Geologists any name more eminent than that of Louis Agassiz (died 1873). Of these views he wrote thus: "Had Mr. Darwin or his followers furnished a single fact that individuals change in the course of time in such a manner as to produce at last Species different from those known before, the state of the case might be different. . . . I shall therefore consider the Transmutation theory as a Scientific mistake, untrue in facts and *unscientific* in its methods." There were other eminent Scientists and Philosophers who declined to fully accept the Darwinian views, such as Buckland, Murchison, and others, down to the present. Many of these, it must be admitted, had not all the facts we have

* Letter in *Nature*, Nov. 28, 1889.

before them; and others who had seemed, like Agassiz, to wait for further proof.

Geology, it is fully conceded by the highest authorities, affords very little aid in arriving at these extinct forms which would connect Man with his Ape-like progenitors. According to Lyell, "the discovery of fossil remains . . . has as yet reached no remains connecting Man with some extinct ape-like creature. Indeed, the breaks of the organic chain of Man's supposed descent are admitted to be of frequent occurrence in all parts of the series, . . . some being wide, sharp, and defined." * These breaks depend merely, it is said, upon the number of related forms that have become extinct; "but there is as yet no proof even by fossil *remains* that they ever existed." †

The opposite theory is that of Creation by the Great First Cause of all things. This is held by a great number of thinkers, if not of writers. Agnostics, however, seem to exclude themselves. No doubt most thinkers believe in Evolution, but not in its *Indefiniteness and Supremacy.* Many hold that Animal Evolution is strictly limited by Natural Law to Species or Classes. Cuvier describes a Species as a "succession of individuals which reproduce and perpetuate it." Man is admittedly a new Species or Class, and, as we have seen, there can be no Evolution from a lower *or any other* species to the new species Man. Keeping this fact in view—and, so far as we see, it is, with less or more explanation, generally prevalent—the Evo-

* "Descent of Man," p. 156 (Murray, 1888).

† "Creation or Evolution," p. 103.

lution of Man from the Ape would be necessarily a contradiction. But we can apply the great TEST of Truth here also. The lower animals belong to the NATURAL, but Reasoning Man to the spiritual or UNIVERSAL platform of Truth, and these are different in *kind*—not merely different in *degree* or species, but, as we have shown, they belong to different Spheres, and are *absolutely incommensurable.*

But, altogether aside from these higher considerations, the question now addressed to the common sense of Mankind remains thus: Has Evolution evolved Man by parental descent from the Ape? Or did the Original Creator, when it seemed good to him to produce Man upon the earth, simply create him (as he had previously created all else) a New Creation—that is, as to his *Physical* nature, *on new, but typically similar*, lines to those of prior creatures; but as to his *Spiritual* nature (Mind) upon lines *entirely new and original*, so far as known to us?

The Materialists maintain a system of Automatism, in which "physical causation is the sole and exclusive agency that works in Nature." Whatever the later Cartesians may believe, it is evident that Descartes held that "the animal mechanism was designed by the Author of nature." The German "school prides itself on its jealous exclusion of any explanation of phenomena which is not purely mechanical." While on the other hand, Herbert Spencer speaks of that "Infinite and Eternal Energy from which all things proceed." *

The extreme Materialists such as Haeckel hold

* "Religion," by Herbert Spencer, in *Nineteenth Century*, January, 1884.

that all the bodies in nature, animate and inanimate alike, are possessed of Mind—a species of Monism. Pressed in argument, they seem to flee from pillar to post, until now, entrenched in their last ditch, they are logically bound to admit that every Molecule of matter is separately possessed of a Soul (Mind). If so, Souls must be practically infinite in numbers, as are the Material Molecules, which fill all Space in the visible Universe! Being thus inseparable, are they not identical, and hence *One?*—contradicting the fact that Matter and Mind are two different entities, the one being Natural, the other being Universal.

The other theory, that "Physical Causation" is the sole and exclusive agency that works in Nature is one that cannot stand examination. It is simply pure Materialism in its logical result. It places Matter before Mind, whereas Leibnitz spoke of a Pre-established Harmony, regarding the mental series as independent, the physical being dependent thereon. Mind precedes Matter.

An appeal to Common Sense, albeit a phrase of Sir William Hamilton's, is not an orthodox factor in Philosophy, yet, as a French writer says, "Common Sense is not a common thing." We must not expect its men of culture to be always consistent, nor be surprised although we cannot clearly see the logic of some of their sayings.

Goethe, one of the foremost thinkers of his day, found that Atheism was "not only repugnant to his feelings, but seemed to him the last development of human folly. To him the world was but the manifestation of Divine energy; he thought of it as 'the

living garment of the Deity.'" * The late Robert Browning, Poet and Sage, wrote thus: "It is a great thing—the greatest—that a human being should have passed the probation of life, and sum up its experience in a witness to the power and love of God. . . . I see even more reason to hold by the same hope—and that by no means in ignorance of what has been advanced to the contrary." Dr. Huxley has well said: "Whoever asserts the existence of an omnipotent Deity, that he made and sustains all things, and is the *causa causarum*, cannot, without a contradiction in terms, assert that there is any cause independent of him; and it is a mere subterfuge to assert that the cause of all things can 'permit' one of these things to be an independent cause." †

Most men will, we believe, confess that the theory of the Evolution of Man from the Brute is repugnant to their natural feelings, whatever their religious views may be. It is remarkable that while the human form is the most beautiful in Nature, and that several of the Animals, although far inferior are distinguished for gracefulness, and even dignity—as is the Lion—the Ape is perhaps the least so in the Animal Kingdom! Can any animal movements excel the beauty and grace of the common Sea-gull floating overhead in a gale of wind? The world is full of such Beauty in endless variety had we minds always open to see it.

* "Goethe," by James Sime, p. 186.

† "Essays upon some Controverted Questions," p. 232 (Macmillan and Co., 1892).

FIFTEENTH LECTURE.

THE ANIMAL WORLD—SPECIES—MORAL IDEAS—DIFFICULTIES —NATURE'S WORKS — FIRST LIFE — TRANSMUTATION AND SELECTION—VARIATION—EARTH'S SURFACE—THE SOUL.

THE question of the distinction of Species in the Animal Kingdom is evidently one of importance, but modern Scientists carefully avoid giving us any definition of the term, while still freely using it in their discussions. This of course renders all argument, on either side, vague and unsatisfactory. We must, therefore, recur to the highest authorities who have attempted it.

The father of Zoology, as a science, was Aristotle, who divided the whole Animal Kingdom into two great sections—the Vertebrata, or red blooded; and the Invertebrata, having a colourless fluid instead of blood. Coming to modern times, Linnæus made six sections—Mammalia, Birds, Fishes with gills, the Amphibia with lungs, Insects, and Worms. Then followed Cuvier, who arranged the animals into four great divisions, thus :—

I. Vertebrata, including Mammalia, Birds, Reptiles, Fishes.

II. Mollusca (Invertebrata), including Oysters, Shell Fish, Snails, &c.

III. Articulata, including Insects, Worms, &c.

IV. Radiata, including Jelly-fish, Infusoria, &c.

A very complete system of the Animal Kingdom was proposed by Agassiz, also of Four great divisions, similiar to that of Cuvier, but with more numerous sub-divisions. These last, however, are not to us of general importance.

And finally, we have the popular scale of divisions, viz. :—

1st, Beasts; 2nd, Birds; 3rd, Fishes; and 4th, Molluscs.

This, although not perfect, is not far from being adequate; for the varying characters of Mollusca, Articulata, and Radiata are by no means clearly distinguishable in several cases, and are interesting only to the Zoologist. Even he is sometimes unable to distinguish between them.

It has been said that Linnæus' aim was to class together "as one Species all those individual animals that agree in essential points, *and have descended unchanged from the same ancestors.*" Later Zoologists modify this supposed line of descent ("which involves the idea of the miracle of Creation"), by including the agency of Variability.

All attempts to find the true classification of Nature in the Animal Kingdom have evidently failed, so that only divers approximations can be made. Perhaps this difficulty arises from the Evolutionists' assumption that Animal Life is progressive in a straight line, beginning with Protoplasm, or whatever may be the first Life, upwards step by step, and species to species, till Mammals are reached. But this theory is not found to correspond

with facts. To use the words of an old writer in reference to the works of Linnæus: "In the method of Nature the *straight line* is blended with the circle and the sphere, so that each object depends not merely upon those which precede and follow it, but upon those which surround it. . . . This method of circles within circles is manifestly the true method of Nature in all her works." But it is a method which to human reason seems inextricable.

If the Evolutionists confined their theory, as Agassiz suggested, to Species, or even to the *four great Classes* of Beasts, Birds, Fishes, and Molluscs, transmutations therein would better commend it to reason as probable; but when it extends from Mammalia to Man it becomes simply impossible to almost all thinkers.

Agassiz came to the conclusion that the divisions of the Animal Kingdom according to type, class, order, family, genus, and species corresponded to the original plan of creation, and were "gradually discovered by Science, not invented by it." We think Nature settles the question of Species herself, and that without appeal. There may be cross-breeding in one generation, but unless continued in the following generations the Species prove themselves to be *different*.

Much attention has been bestowed upon the evidence which seems to be given by the Stalactite Caves on the question of pre-historic Man, and the era of the various fossils there embalmed, or buried in their floors. The stalactites are formed by the droppings of rain-water from the superincumbent soil. Rain-water is impregnated with carbonic acid,

and, passing through the overhead subsoil, generally of lime or limestone, leaves a deposit, which, after evaporation, is Carbonate of Lime, forming Stalagmite upon the floor of the Caves. From observations made, it is found that a certain depth of such deposit is formed on the floor in a given period of years, and is said to furnish a measurement of its age. Thus, from the thickness of the floor-deposits, above the animal fossils found in the Caves, the periods of time which have elapsed since the deaths of the various animals are supposed to be ascertained by calculation.

The remains of primeval Man are said to have been so found in the Caves in France, and the fossils of numerous animals in the Caves of our own country. To those who have visited these Caves, or those of the Peak in Derbyshire and at Torquay, the data for such calculations will not, we think, appear very certain. If the deposits of *Ancient* centuries had always been made at the same uniform rate as those of the present century, the calculation might of course be correct; but there are evidently numerous probable causes why it may not have been so. For example, the superincumbent soil being unchanged, the lime it contained must have gradually been becoming less and less pure, and so chemically less strong and active than it was at first, or say even thirty centuries ago. Consequently, the rate of deposit would gradually and in time *seriously* decrease, and now may not be one-tenth so great as in primeval times. Or, if earthquakes, disastrous flood, or physical catastrophe of any kind had arisen, the deposit must have been extremely irregular.

Indeed, does not the crowding together, in some instances, of Cave fossil remains of a great variety of animals, in character most incongruous, suggest a sudden alarm, or disaster, or cataclysm of some kind?

The views of Agassiz have, of course, been warmly contested by those who hold the theory of the Transmutation of Species. They were challenged with much vigour by Professor Alfred Newton, in his Address at the meeting of the British Association in 1887, in the Biology Section. Professor Newton summarized the views of Agassiz thus: "*Louis Agassiz pinned his faith on every Species being . . . the result of a single direct act of creation.*

Now, if this was all, Agassiz has possibly some disciples even yet as against the extreme Transmutation theory.

But he goes on to add an appendix. Professor Newton thus continues: "When he found that physical barriers interposed (as they often do) between two or more parts of the area which the 'Species' occupied, he (Agassiz) did not hesitate to declare that a 'Species' might have been created directly in several places at sundry times, and even in vast numbers. If the same Species of fresh-water fish, for instance, was found in several rivers which had no intercommunication, it had been, he asserted, separately created in each." He proceeds further to say that Agassiz's "belief was, that there had been going on around us a series of mysterious performances, not one of which had ever been consciously witnessed by a human eye. . . . Yet the position of Professor Agassiz was per-

fectly logical when once his premisses were admitted, . . . and it became obvious to all clear-seeing men that one of these alternatives must be adopted—either Agassiz's logical doctrine . . . or the theory of the Transmutation of Species, which had been so long condemned because no reasonable explanation of its *modus operandi* was known." Professor Newton adds: "I have called these alternative opinions, because I believe that no third course has been suggested by any Naturalist!"

Is this quite clear? To ordinary readers we think it will appear that a third theory is not *impossible*, namely, the pure and simple Agassiz theory as before stated, ending with the words "single direct act of creation"—that is, all the words above which are printed in italics. The "appendix," however, suggests a theory which, although to us not obviously a *reductio ad absurdum*, does certainly appear to be most improbable and quite unnecessary. But whether it is more difficult of belief than the entire theory of the Transmutation of the ape into Man, is beyond our present purpose. Here the reader will observe that the *modus operandi* of *both* theories of Creation has never been "witnessed by a human eye," and that of both alike it still remains unknown.

Let us look a little at this altered theory, which, simply stated, is this: "*Every Species is the result of a single direct act of creation.*"

It seems obvious that the difficulty of physical barriers interposing between different localities of the globe is *alike common to all theories, including that of Transmutation.*

Yet the idea that some species of Animals, Fishes,

and Fowl could, in course of time, travel by degrees to their Antipodes, does not seem extravagant. But, supposing this were impossible, *could Transmutation take place in these widely separated areas seeing that there were no animals already there to transmute?* To answer Yes! does certainly seem a *reductio ad absurdum.* As to fresh-water fishes, the salmon, for example, lives well in the ocean; and why may not *any* fish adapt itself by degrees to both salt and fresh water, as well as to Arctic and Equatorial temperatures?

Besides, are we not taught by Geologists that the Land and Water of our globe were very differently related to each other in prehistoric ages? We cannot here enter upon the disputable subject of the Distribution of the Fauna on the Earth's surface. But it has recently been said that the Fishes found in the Sea of Galilee are quite different from those found in the Mediterranean and the Red Sea. This is not very surprising, seeing that the one is fresh water and the other salt. But it is remarkable, if true, that the Galilean Fishes prove to be similar to those now found in the great inland Lakes of Livingstonia in Central Africa! This would appear to indicate that in some prehistoric age there must have been means of communication between these fresh-water seas now so divergent—how destroyed, by a convulsion of Nature or otherwise, we cannot know.

Such a conclusion as this suggests is not altogether a novel one, and the extraordinary depression of the Dead Sea and the general appearance of the locality seem to favour it. The surface of this Salt Sea is now far below that of any other sheet of

water on the surface of the globe, being 1,300 feet below the level of the Red Sea and the Mediterranean; and it is gradually getting lower, as its evaporation is greater than the supply by the Jordan and other streams. Of course the supply and the evaporation will in time equal each other, that is, when a yet lower level is reached, because there is an ever-lessening *surface* of water exposed to evaporation, consequent on the sloping sides of its enclosing hills. The level of the surface of this lake stood at one time 100 feet *higher* than the waters of the Mediterranean stand now.* Evaporation is here extreme, the heat being more intense, perhaps, than at any place, even upon the equator. Its saltness is excessive, being four times as much as that of the ocean. Another peculiarity of the Salt Sea is its great depth as an inland lake. The water of Jordan as it leaves the Sea of Galilee is clear, but its course is extremely rapid and tortuous, and it carries down considerable quantities of soil and *débris* into the abyss of the Dead Sea. When we consider, in addition to this, the amount of saline deposit left by unknown centuries of evaporation, we must conclude that the *original* bottom of this sea is *very* far below the present bottom. Indeed soundings have become very difficult because of the extreme buoyancy arising from the Specific Gravity of its water. Recently it was found to be 1,217 feet. From a modern Geological Map, by Dr. Edward Hull,† it seems evident that from the locality of the Salt Sea to the north end of the Gulf of Akabah there is a hollow or valley which, for the

* "Buried Cities," by George St. Clair, F.G.S. (Kegan Paul, 1891).

† "Geology and Geography of Arabia Petræa," p. 12 (Bentley, 1886).

greater portion of its length of upwards of 100 miles, is about six miles in width. Its surface is variously formed of sand, gravel, shingle, and marl. In some prehistoric age this probably was a great water-way, connecting the waters of the Jordan with the Red Sea. For those who have visited the locality and seen the numerous different levels of the terraces, it is difficult to believe in the doctrine of "Geological Uniformity," and that no Cataclysm has ever occurred on the Earth's surface. Even in historic time we have numerous instances of such cataclysms on a small scale. "There has been a re-elevation of the land since the Glacial period, amounting to 230 feet upon the coast of Maine, 500 feet in the vicinity of Montreal, and in Scandinavia of 600 feet. In portions of Scandinavia the land is rising at the rate of three feet in a century. Other indications of even the present instability of the earth's surface occur in numbers too numerous to mention." * Whether these figures are quite reliable or not, we think that from various other observations it must be admitted that the earth's land levels are by no means stationary.

Dr. Livingstone, speaking of the old river beds of Central Africa, says: "The country is intersected by valleys in all directions, once the beds of *great rivers* whose course was mainly south." There are indeed several indications that in prehistoric times there had been in various countries much greater rainfalls than in modern times.

At Mount Ararat (17,000 feet high) and claimed as

* "Man and the Glacial Period," by Prof. G. F. Wright, LL.D., p. 881 (London: Kegan Paul & Co., 1892).

the resting-place of Noah's Ark, we read that*—"In June, 1840, the sudden shock of an earthquake, accompanied by a subterranean roar, . . . detached enormous masses of rock . . . from the cliffs that surround the chasm. A shower of falling rocks overwhelmed . . . the village, the monastery, and a Kurdish encampment. Not a soul survived."

Professor Newton goes on to decide that the Transmutation theory is established, because now there were men who had personally compared the geological formation of the Old World and the New, "who had dredged the Australian ocean and explored Amazonian forests. Out of the abundance of these observations and reflections these men delivered their verdict, and . . . its effect was crushing, . . . and the theory of the Transmutation of Species fanciful and unreasonable as it had been thought, was . . . established."

If these learned travellers have not actually "witnessed with human eye" † the process of Transmutation, they have evidently witnessed both Remains of ancient transformations and living examples of it in operation, or what they believed were such; and they have learned numerous other indirect facts and circumstances pointing to the same conclusion. Now, although they were men not likely to be deceived, such evidence is not absolute *Fact*, and must always contain much element of *opinion*, until some great Fossil or living example can be produced such as will convince even the doubtful. Till then,

* "Transcaucasia and Ararat," by James Bryce, p. 240 (Macmillan, 1878).

† *Nature*, p. 463 (1887).

many will prefer to *wait* the progress of events rather than even question such eminent Masters in Science, or throw aside Agassiz's third course as suggested.

Much was expected from the evidence which Fossils throw on this question. Mr. Clodd says: "The interest which the study of the erupted fire-used and water-laid rocks awakens, especially in their witness to ceaseless changes through an ever-receding past, becomes more immediate and human when the relics of ancient life-forms are examined; and when their appearance, persistence, or disappearance, their order and succession in an ever-varying, ever-ascending scale, are traced. For in them lies the record of life on the earth through measureless time; the life that was parent of all life that is." But the result has not, at least as yet, proved satisfactory. Even Mr. Clodd, a succinct exponent and advocate of Evolution, is obliged to add: "True it is, that the record is very imperfect, that the gaps remain wide and numerous, even when supplemented by fossils from different parts of the globe. But the wonder is that the blanks are not greater. . . . It is impossible that the vast number of lowest life-forms should have been preserved." * This is true, but by no means explains why not *one fossil of Ape-Man* has been found, while fossil remains, equally fragile, survive.

It is evident that the question of Creation of Life is a very difficult one to answer. Agassiz's improbable supplementary theory of single separate creations meets the difficulty, but it does not seem at all in

* "The Story of Creation," p. 29 (Longmans, 1888).

accord with the theologians' idea of one Creative fiat confined to one locality. Far less does it accord with the obvious "Husbandry in Heaven," nor altogether with Nature's universal plan, and that completeness, simplicity, and *Oneness* by which her works are distinguished as compared with the cumbrous works of Man. These are accompanied by Noise and Confusion, but Nature works slowly and silently. Carlyle says, "When the oak is felled the whole forest echoes with its fall, but a hundred acorns are sown in silence by an unnoticed breeze."

Let us examine Man's inventions—as, for example (practically his greatest), the Steam Engine. It asserts "an almost unbounded supremacy over . . . materials." * It is impossible to over-estimate the importance of these Inventions. The Ancient Greeks would have elevated their Authors among the gods.† Originally each part of the Engine was constructed solely for its own individual purpose—large, heavy, costly, working very inefficiently, and altogether noisy and inelegant. Look at it now—small, concise, and efficient, each part combined most intimately with the others, so as to form together a compact and sufficient framework for the whole, and thereby greatly economizing cost, weight, space, material, friction, and coal. And now we see this Steam Engine adapted to a thousand purposes for which it originally was unavailable—in short, one of the greatest wonders of modern times, and a triumph of Man's mechanical genius. How was this attained? Simply by gradually approaching Nature's plans, and

* "Industrial Biography," by Samuel Smiles (Murray, 1863).

† *Edinburgh Review.*

copying her unity, symmetry, *and husbandry*, so beautifully combined, for as Rosseau said: "Men do nothing excellent but by imitation of Nature." If other inventions are examined, we think the same features will be found throughout—first, the "cumbrous work of man," and then gradually an approach to the simplicity and efficiency of Nature.

Then, as to Nature's work, look at the human head:—

"The dome of thought—the palace of the soul!"*

Within that wonderful ball are placed the organs of all the senses, as well as those of speech and mastication. Here is contained the most important of all Material things—the Brain—the seat of Reason and Centre both of thought and action—the mysterious meeting-place between Mind and Body, a subject which we will consider later on. Canopied with a thin shell, and poised on a mere pivot, Eastern women can thereon carry half their own weight, with lithesome grace. And then its front—look at "the human face divine"!—that wonderful exponent of every human feeling and index of the brain, revealing elegance, beauty, and the *surpassing dignity of Mind.* It would surely be impossible to point to a finer specimen of Nature's Unity and *strength*, combined with the Husbandry of space.

Amongst geologists there is difference of opinion as to our Earth's history in past ages. Some we have mentioned, but many eminent men think they

* Byron, "Childe Harold."

have seen traces of one or more *great changes* or convulsions upon its surface—convulsions so considerable as to convert land into sea, and to raise great tracts of submerged land into mountain heights. The eminent French naturalist Gaudry, here an important authority, says: "Without doubt at one time Europe was connected with Asia by uninterrupted plains now covered by sea"; and some think that the great inland Caspian Sea originally communicated with the Ocean.

Of course all theories of creation are "guesses at truth"—at best only opinions resting upon no certain foundation, and beset with objections of various kinds. But do not such considerations suggest a somewhat probable theory of the creation of animal life on the earth?

Let us assume Agassiz's formula so far: Every species is the result of a direct act of creation; or, seeing that the word Species has not yet been mutually defined, read it thus:—

"*Every distinct Class of Animal is the result of a direct act of Creation.*"

Many suppose that the *whole* Animal Kingdom was created by one direct united act both as to time and locality. The dry land being *then* one continent, or connected together by not impassable barriers, the various animals may have dispersed themselves abroad, even to the most distant localities, partly by *natural selection* as to climate and other circumstances, partly by fear of their more aggressive or natural enemies, and partly in accordance *with their adaptation for travel.* These probabilities are strengthened by the fact that the most distant

localities are poorly supplied with Mammals, not only sparse in number, but poor in size, courage, and varieties. As in the great continents of Australasia, there are—like the Kangaroo—rapid travellers, and so defenceless that they could not survive in the other continents of the world where wild beasts of numerous varieties prevail.

This appears to be not only the most probable theory, but the theory which best meets all the difficulties above mentioned. That some considerable convulsion has subsequently arisen many believe to be in accord with Geological and Geographical facts. As to Man, it is not necessary to suppose that he was dispersed over the globe at the same time as the animals, because he could, by his own devices, reach even the most separated or distant shores at any subsequent time or times, in accordance with his love of improvement and adventure, of which characteristics animals are entirely devoid. We think it will be found that Animals generally inhabit and frequent a comparatively limited extent of territory, and, if migratory periodically, return to the same locality.

In leaving this branch of our inquiry, we will try to explain the difference of opinion among Geologists regarding the past history of our Earth. The one party, led by the high authority of Sir Charles Lyell, maintain the theory of *Uniformity*—that is, that no cataclysm or convulsion has ever occurred, other than the ordinary present forces and processes of Nature can account for—that, in short, Nature works uniformly. More recently, however, this view has been questioned. The subject is discussed at

some length by an intelligent writer, Mr. Howorth,* who confronts the theory of Uniformity with the facts of recent Geology. His argument is to show that a great cataclysm occurred at the close of the Mammoth period, and was occasioned or accompanied by a great flood, pointed out in the traditions of almost all Races.

Professsor Huxley appears to aim at reconciling the two parties. "To my mind," he says, "there appears no sorts of theoretical antagonism between Catastrophism and Uniformitarianism; on the contrary, it is very conceivable that catastrophes may be part and parcel of uniformity." This is a perfectly logical suggestion. Sir Robert Ball has shown that Ice Ages have happened and will occur again in course of time. The Astronomical theory removes the Glacial period from the position of a catastrophic phenomenon.

There are three standard proofs of Evolution which are insisted on as quite unanswerable. The first is the fact of Natural Selection, the second that of "Variations" in Nature, and the other the remarkable fact of "Rudimentary Organs" in Man. Too much seems to have been made of the first of these. It is based chiefly upon the circumstance of the battle continually carried on by the stronger male animal against the weaker, so eventually providing a higher or select class of animals. This result is not and cannot, at least in the *Natural* or wild state, be obtained. Besides, we have seen that the less fit are not killed generally, and their

* *Nature*, June 1888, p. 128.

progeny just mingle with those of the fittest in the next mating season. This fact, therefore, which at first sight appears so very formidable, amounts to comparatively little. We fail to obtain by it any new or higher class or species of animal. Dr. Eimer says that "Natural Selection is insufficient to account for the Evolution of the Organic World, because it is essentially the rule of Chance."

The remarkable "Variations" in Nature, if they were indefinite, would certainly result in Evolutions the most extreme. But we have elsewhere seen that none of the Natural forces are possessed of Continuity, and it is obvious that Variations are invariably confined within definite bounds. Whether it be that the level of the earth above that of the sea is maintained by a series of eruptive elevations or not, it is generally allowed that there is going on perpetually a levelling of the land and an alteration of its contour by the great corroding power of running water. The result of this must ever be the continuous degradation of the solid land and a corresponding rise in the sea level, both at its bottom and its surface. These results are chiefly caused by rain, but also by frost, snow, and storm. The effect of such alteration of levels may not be great in course of Man's observation, but in thousands of years would have become obvious had correct records been kept.

But the Rudimentary argument looks formidable. However, the difficulty becomes less obvious when we consider that the Mammals generally are possessed of Rudimentary Organs. Rudimentary Organs are apparently useless to the possessor, but

neither hurtful nor inconvenient, and generally they are very insignificant.

Perhaps the best explanation of these apparently unnecessary organs will arise out of this consideration. Even Evolutionists, almost without exception, admit an Original Creator of the World, *supremely* powerful, wise, and prescient, and all observation reveals to us the *remarkable* Husbandry in Heaven, and the ONENESS of His work. Thus *one comprehensive* architectural or *typical* Design appears to have been provided for Mammals generally, but admitting of adaptation or varieties of certain organs, as required to best serve the necessity and comfort and efficiency of every separate kind of Mammal—in short, the *very best, and probably the only possible, perfect general design required to suit the whole, and the circumstances of each variety.*

Man seems, in the opinion of many eminent thinkers, to have been a separate and entirely different creation, inasmuch as he was evidently destined for a vastly higher platform, and primarily endowed with a spiritual element—Mind and its concomitant Language—*entirely new.* None of the Animals were capable of any improvement whatever, physically or otherwise, beyond their own Natural Instinct sphere, either of themselves, or of the world around them. But Man was destined to rule them all, and to mentally improve himself and all around him; to discover and invent, and to use all the elements of Nature in improving the world, and the condition and well-being of his fellows.

But no new architectural Design or physical form was needed for Man, seeing he was to be not an Angel

but a Mammal inhabiting the earth, and the best *type of such was already prepared;* therefore nothing *more suitable* was possible other than the same perfect comprehensive typical Design already revealed; for *Nature never wastes power but wisely husbands it.* Some critics may think this sentence questionable, but is it not true and logical; for surely nothing which is perfect can be improved? Man's physical form is prepared in *Type*, and is altered from the frame of the Mammals so far, and no farther, than his different destiny and his work on earth required, so as to be *perfectly* fitted for his usefulness and happiness as *Man.* If, for example, he should be possessed of two molar teeth more than he uses, these will be rudimentary, *scarcely perceptible*, and perhaps aid in improving the contour and beauty of his face. In like manner the rudimentary toe or hoof of the Horse, is evidently strengthening to the limb, and its removal would not improve its symmetry. Aristotle seems to have taken a somewhat similar view of this matter, and Dr. Huxley evidently puts no value upon the question of rudimentary organs. He with great candour writes: "Such cases as the existence of lateral rudiments of toes, in the foot of a horse, place us in a dilemma. For either these rudiments are of no use to the animals, in which case . . . they surely ought to have disappeared, or they are of some use to the animal, in which case they are of no use as argument against Teleology" [Final Causes].* Be this as it may, in such cases as we have above given, they can scarcely be called useless.

* "Life and Letters of Charles Darwin," vol. iii. p. 119 (Murray, 1887).

Although man is ever reminded of his physical resemblance to the mere animal-creation, he is not to be considered as only a superior specimen of these; for, in *no degree* whatever is he a blood relation by paternal Descent or otherwise. However, being in fact a Mammal, he is generally called an animal; but, as Shakespere has it, he is indeed of these "*the paragon*," and should never forget that he stands upon a different platform, and possessing Language is obviously intended for a vastly higher destiny.

Man is born naked, the animals are born clothed with hair. The little hair Man possesses is useful and is one of his most graceful ornaments, is it not absurd to call it Rudimentary? The clothing he wears is his own manufacture, made from the spoils of the chase, or the growth of the field. The resemblance he bears to the Ape is somewhat fanciful, and in some respects the word *contrast* would be applicable; the one is the emblem of gracefulness, the other the most ungraceful of beasts. Extreme Evolution as a theory tends to lower Human Nature, and detracts from the dignity of Man's position in the Universe, by insisting upon his relation by descent to the lower animals, even the most undignified—"Look here upon this picture and on this." Yet Darwin, Comte, and others of its advocates, seem to preach a coming time when not Man, but *Humanity* (according to Comte), is to reach a still more exalted position. Shakespere, however, held an ennobling view of his *present* standing: "What a piece of work is Man! How noble in Reason! how infinite in faculties; in form and moving how express and admirable! in action how like an angel! in appre-

hension how like a god! *the beauty of the world;* the paragon of animals." *

To us there seems nothing more surprising than that some men eminent in Science and Philosophy could have satisfied themselves that mankind are highly developed Apes. In the words of a well-known writer, we think it could have found "no hearing while religion and intellectual culture retained their old dominion. The Gospel of St. John, the 'Antigone' or 'Hamlet,' lie external altogether to the sphere of the Ape's activity." †

"There is," says Novalis, "but one temple in the world, and that temple is the Body of Man. . . . We touch Heaven when we lay our hands on a human body." To Man belongs this world, and of all that it contains he is the sovereign lord and master—and how great is his birthright! "This goodly frame the earth—this most excellent canopy the air—this brave o'erhanging firmament—this majestic roof fretted with golden fire." Here Man's relationship is referred to the Divine not to an animal parentage. Certainly such a view is very much more ennobling and elevating to contemplate, and one to be cherished in view of Man's great future destiny. For is he not immortal? heir of a state compared to which the present life can only be conceived of as a mere child's training-school! A high state of existence is ours as well as for a future "Humanity"; yes! for *us* now, the present men individually. "What nobler tasks has the poet," says Oliver Wendell Holmes, "than to

* "Hamlet," act ii. sc. 2.

† "Short Studies," Third Series (Longmans).

exalt the idea of manhood and to make the world we live in more beautiful."* *If only for a future Humanity—this "Good Time" coming—of what avail to us and all the thousands of millions of the human race whose ashes are now in their graveyards?* Tennyson said—

> "Be near *me* when I fade away,
> To point the term of human strife,
> And on the low dark verge of life
> *The twilight of eternal day.*" †

Professor Henry Drummond has told us of a colony of so-called "Primeval Men" discovered in Central Africa, hidden away in the endless forests in terror of other tribes, and of their common foes the slave-dealers. Here in small native villages they dwell in virgin simplicity, "without clothes (?), without civilization, learning, or religion; thoughtless, careless, and contented. These men, apparently happy, have practically no wants. One stick pointed makes him a spear, two sticks rubbed together make him a fire, fifty sticks tied together make him a house; the bark he peels from them makes his clothes; the fruits which hang on them form his food. . . . His entire earthly possessions are buried with him. . . . His pipe, his rough knife, a mud-bowl, and last his bow and arrows, the bow cut through the middle." ‡

Here the reader will observe a perfect contrast with the mere animal. He does not live absolutely naked, but is a tailor, a fire-maker; he is not a *mere*

* "Over the Teacups," p. 49 (Houghton and Co., New York, 1891).
† "In Memoriam," stanza l.
‡ "Tropical Africa" (Hodder and Stoughton, 1888).

builder like the beaver or the bee, but constructs a house by tying sticks together, in a *mechanical* operation involving some *kind of tool*, and no doubt by using his knife. He is consequently a Tool-maker, of which no Animal ever is either a maker or a user; nor does it ever use any kind of instrument even of defence. He is also a potter, and a maker of bows and arrows, and evidently could cook his food. No doubt his civilization and his physique are of the lowest type, almost, for he has been kept down by two potent causes—War with his fellow-tribes and terror of the slave-dealers. These shut him up in his hiding-place; but remove such causes, and these so-miscalled primeval men will gradually return to the dignity of men physically and mentally, which the mere animal can never do. That he has retained belief in immortality is indicated by his burial ceremonials. He is possessed of Language, and therefore of Reason, and probably has some obscure religious idea. Paul Da Chaillu describes a similar diminutive tribe, the Obongos—whose height varies from four feet four inches to five feet, caused by a congested isolation and too much intermarrying.*

If Conscience is not one of the Faculties of Mind, and is independent of the Will, it may be asked on what basis does it stand as a judge of conduct? The only answer seems to be, that this basis must be *inherent* in Mind itself—in every human mind. Hence Hamlet well said:

"Thus Conscience does make cowards *of us all.*"

* "Equatorial Africa," p. 446 (London, Murray, 1890).

Every Savage has some idea of Right and Wrong—of right it may be very faint, but of wrong strong in the inverse proportion of his amount of civilization, and hence his intense spirit of revenge. Thus the Moral Law is, as it were, embedded in his constitution, although he be ignorant of the Decalogue as such. Hence it is that every Savage people yet discovered religiously worships some god or gods—our "First Commandment." Generally so very overpowering is this religious feeling, or superstition, that he will sacrifice his all, and even lacerate his own flesh in mistaken acts of devotion. The other "Commandments," he will observe very imperfectly, but still they will exercise some moral restraint upon his acts in relation to his fellow-men.

The only exception to this religious or superstitious feeling seems to be this newly discovered tribe in Central Africa. Perhaps the altogether exceptional state of siege they seem to suffer may have destroyed, or nearly destroyed, the tendencies of their human nature.

In contrast with the very low intellectual condition into which human nature may descend, we quote from an intelligent writer* on Art. "As for portraiture . . .. in other words, the outward modifications wrought upon the features *by the workings of the Mind*, no artists of any age have excelled the sculptors of the Egyptian *Ancient* Empire"—an index this of the highest refinement.

On several of these points above discussed thinkers are generally agreed, while on others the question of Natural Selection leads to various differences. Dr.

* "Pharaohs, Fellahs," &c., by Amelia B. Edwards, 1891.

Darwin, speaking of Natural Selection, says with most commendable candour: "How far the present condition of living beings is due to that cause; how far, on the other hand, the action of Natural Selection has been modified and checked by other Natural Laws, by the unalterability of types, by atavism, &c.: how many types of life originally came into being, and whether they arose simultaneously or successively—these and other similar questions remain unsolved, even admitting the theory of Natural Selection."

Yet another and different writer has appeared in the field. He says, "At the outset, Soul was defined to be an *internal Power, called into being by maternal influences.*" * With such free and easy assumptions, it is of course quite possible to frame an explanation of everything, physical and psychical, and which he proceeds to do in a wonderfully illogical way, under the ægis of Professor Haeckel.

"It is," says St. George Mivart,† "the process of Evolution in the Mind which should interest us." . . . "The Cosmic process . . . is wonderful." . . . "Yet it is nothing to the formation of a self-conscious being." . . . "Phases . . . of human intelligence . . . form a nobler object . . . than . . . myriads of stellar orbs."

Referring to Motives, he says: "Merit depends on motives, . . . thus . . . the same act may be moral or immoral according to the direction taken by the will."

* "Past and Future," by Dr. Charles Moore Jessop, p. ix (Kegan Paul and Co., London, 1892).

† *Nineteenth Century*, August, 1893.

SIXTEENTH LECTURE.

THE DEVELOPMENT LAW OF "THE VESTIGES"—DARWINISM—SELECTION—INTIMATIONS OF IMMORTALITY—VARIABILITY IN NATURE—ITS LIMITS—THE PERFECTIBILITY OF TYPE—A NEGATIVE CREED—AGNOSTICISM—OTHER THEORIES—FREE-WILL.

IN the year 1844 appeared an anonymous work, the "Vestiges of the Natural History of Creation," in which Creation was treated as one continuous Law of *Development* from the primordial elements of Matter, or "Fire-mist," up to the completed planetary system and Man.

By this Law, organic matter rose out of inorganic by its own inherent energy! thus apparently claiming for it a living personality, and ignoring Creation in the ordinary sense of that word. In Nature everything rises to higher and higher stages, and "Organic Life presses in [from where?] whenever there is room and encouragement for it." The vertebrate animal rises out of the mollusca, and Man out of the monkey; while even *Mind* grew out of mere animal life! "Thus a Cuvier and a Newton are but expansions of a clown; and the wicked man is one whose highest moral feelings are rudimental." We have seen that Mind must have existed before Matter, but here the unfathomable gulf which divides dead Matter from

Life and Animal Instinct from Mind, is quietly overleaped and ignored, as is all distinction between *Natural* and *Universal* Truths.

Dr. Robert Chambers, its author, however, did not question the existence of a Great Creator, nor his kind and providential care and even government of Nature, nor the reverence due to him as such. To many readers this will seem a contradiction to his inexorable Law of Development, and indicates a most defective conception of God's *absolute* infinitude and supremacy. Whether His creation consists of one planet or of a thousand astral spheres matters not in the least. He does not need "to be constantly moving from one sphere to another" under any circumstances [see his chap. xii.] * This Development theory, expounded as it was by great ability and scientific research, has quite failed to establish itself, and now seems to be withdrawn. It was in 1859 succeeded by Charles Darwin's *Evolution* theory, to which it bears only a slight resemblance.

The theory of Evolution by Natural Selection, first made familiar to the general public in the works of Dr. Darwin, was never claimed by him as exclusively his own. The honour of its enunciation is shared by Mr. A. R. Wallace, to whom the idea independently occurred, and who wrote an essay "On the Tendency of Varieties to depart indefinitely from the Original Type." Dr. Darwin willingly acknowledged his claim, and even recognized that Mr. Patrick Matthew, of Perthshire, had anticipated the idea in his work on Naval Timber of an older date (1831). But, indeed, Evolution had been sug-

* "Vestiges of Creation."

gested by Lamarck, and still earlier by Buffon (1707).

"I perceived," says Dr. Darwin, "that Selection was the keystone of Man's success in making useful races of Animals and plants. But how Selection could be applied to organisms, living in a state of Nature, remained for some time a mystery to me. In October, 1838, being well prepared to appreciate the struggle for existence from long-continued observation of the habits of animals and plants, it at once struck me that under . . . circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result of this would be the formation of new Species. But at that time I overlooked one problem of great importance. . . . This is the tendency in organic beings, descended from the same stock, to diverge in character as they become modified. That they have diverged greatly, is obvious from the manner in which species of all kinds can be classed under genera, genera under families, families under sub-orders, and so forth. The solution, as I believe, is that the modified offspring of all dominant and increasing forms tend to become adapted to many and highly diversified places in the economy of Nature."

This great proposition may, we think, be admitted generally, if the meaning is strictly limited to its own Sphere; but if the words, "*highly diversified places in the economy of Nature*" be elastic enough to include development, say, from the Mammal to the Man, *i.e.*, from the NATURAL to the UNIVERSAL or spiritual sphere, then it is *clearly untrue*, because it evades the question of Mind; and we have seen

that "Mind is the Man." This we believe is already *proved*, and we need not here repeat the argument.

Darwin only published his discovery in November, 1859, under the now famous title of "The Origin of Species," * a work which has had a very large circulation, and has been translated into nearly all the languages of Europe. It at once caused a great sensation: multitudes of replies and criticisms on both sides of the question followed, and the controversy continues even yet. His "Descent of Man" followed several years afterwards (in 1871). It is not to be wondered at that his views so striking and original were at first hastily and somewhat unfairly treated by several writers and speakers; but he maintained his own opinions with considerable dignity, and was so fortunate as to be supported by able and very friendly criticism in the press, quite unusual with theories so new.

Darwin was evidently a careful thinker, for he pondered over his discovery for more than twenty years before publishing. His Life, now before the public,† reveals him as a cautious searcher after Truth, and by no means a controversialist. It seems evident that this theory of his regarding Evolution by natural selection was the study of his life-time, and so engrossed him that, to use his own words, his mind must have become blind to all else, as some men's eyes become colour-blind. He makes a singularly candid confession that a "very curious change came over his mind;" but he could not conceive how

* John Murray, London.

† "Life and Letters of Charles Darwin," by F. Darwin (Murray, 1887).

this should have caused the atrophy of that part of the brain on which the higher tastes depend, a point this of which we will treat later on.

Thus he analyses his own mental powers with remarkable impartiality and modesty. His power to follow a purely abstract train of thought was limited, but he thought he was superior to ordinary men in noticing facts which easily escape attention. Of this characteristic of his mind, we think no one who reads his two large volumes on "The Variation of Animals and Plants" * will doubt.

The following quotations are made from the "Autobiography," dated 1876: "The more we know of the fixed Laws of Nature, the more incredible do miracles become"—"I gradually came to disbelieve in Christianity as a Divine revelation"—"I was led—although I do not think that the religious sentiment was ever strongly developed in me—to the firm conviction of the existence of God and the immortality of the soul."

In one of his letters to Mr. Graham, he gives a remarkable insight into the state of his mind as regards its own development. He writes that his inward conviction was that the universe is not the result of Chance; but then the horrid doubt arises, whether the convictions of a Man's Mind which have been developed from the Minds of the lower Animals are of any value, or trustworthy at all, and he asks despairingly if any one would trust in the convictions of a Monkey's Mind!

The following expresses his opinion about Immortality: "With respect to immortality nothing

* John Murray, London, 1868.

shows me (so clearly) how strong and almost intuitive a belief it is, as the consideration of the view now held by most physicists—namely, that the Sun with all the planets will at one time grow too cold for life, unless indeed some great body dashes into the Sun and thus gives it fresh life. Believing as I do, that man *in the distant future* will be a far more perfect creature than he now is, *it is an intolerable thought that he and all other sentient beings are doomed to complete annihilation after such long-continued slow progress.* To those who fully admit the immortality of the soul, the destruction of our world will not appear so dreadful."

In 1879 he states that he had never in his most extreme fluctuations been an Atheist in the sense of denying the existence of a God. To a German student he wrote, "For myself I do not believe that there ever has been any revelation. As to a future life, *every man must judge for himself between conflicting vague probabilities.*" This at least is an evidence of the candid and *tolerant* spirit of the man.

After his five years' voyage with the *Beagle* exploring Expedition he settled in London. His Life relates an amusing account of a dinner at his brother's, at which Carlyle, Babbage, and Lyell were present. The latter two liked to talk, but Carlyle silenced every one by haranguing during the whole dinner on the advantages of Silence. After dinner, Babbage, no doubt sarcastically, thanked Carlyle for his interesting lecture on the advantages of "Silence!" Dr. Darwin evidently was not in need of it, but probably Carlyle thought silence and fuller consideration desirable, both for himself and the two

others, before committing themselves to, or propagating the new theories then creating general controversy. Carlyle, one of the most profound thinkers of his era, was especially great as a Philosopher, and in his eyes silence was here evidently golden. Although he modestly made no claim as a Scientist, his writings evince a correct knowledge on scientific subjects generally. The anecdote is very characteristic of the man.

Darwin's cherished views on the great subject of his life-study were given without dogmatism. He did not thrust them forward hastily, nor hold them up as absolute certainties, to be accepted without question. But to his own mind they were satisfactory as far as the evidence led; although he considered it incomplete.

Variation seems to be an inherent characteristic of Matter, for there are no two subjects in the world exactly alike, if minutely examined. "Equality is not a law of Nature. Nature has made no two things equal." No two stones are so, and the fact becomes still more obvious where Life exists.* It is seen in the Vegetable world, for no two leaves are perfectly similar. It is more apparent in the Animal world, and continues to be more and more so as we rise in the scale of being. Thus it is more obvious in fishes than in molluscs, more in birds than in fishes, more in the mammals than in birds, and finally much more obvious in Man than in the irrational creatures. The two Dromios are a creation of Shakespere's mind, but such are very rare in Life.

* Darwin's "Variation of Animals and Plants," vol. ii. p. 251.

Not only is this so, but, as Dr. Darwin says, "there is a tendency in organic beings to diverge more and more from the original stock" in the course of time. If this divergence were tending towards the unknown or the indefinite, and not in each case *limited* within certain lines, it seems probable that a time would come in the extreme future when all distinctions of Species would cease, and not only so, but distinctions of all kinds would disappear!

Indeed it seems evident that such divergence *cannot be indefinite*, but must be restrained within fixed limits, for in *Nature* there is no Continuity of improvement. Species is too uncertain a word to use here; but such popular divisions as Molluscs, Fishes, Birds, and Mammals, are distinctions *so obvious* and fundamental, that many men cannot, without farther proof, believe that any one of these classes *ever diverges* into another. As to Man, such an idea is, as we have seen, simply *impossible*.

Dr. Darwin writes: "Whether or not the amount of Variation in any particular direction is fixed, the tendency to general variability seems unlimited. . . . Cattle, sheep, and pigs, have been domesticated, and have varied from the remotest period; . . . within quite recent times been improved in an *unparalleled degree*, and this implies continued variability of structure."*

We observe here that the Cattle, Sheep, and Pigs, have *not* become anything but Cattle, Sheep, and Pigs (greatly changed certainly, by domestication), and the alteration may go on, but *limited always*

* "The Variation of Animals and Plants," vol. ii. pp. 416–417.

within the lines of Cattle, Sheep, and Pigs. The meaning of his words, "and this implies continued variability of *Structure*," is, therefore, to us, far from being clear. Evidently this alteration has not really changed the *structural forms* of these domestic animals. We may doubtless assume that Dr. Darwin did not mean that, for example, a Salmon could by any prolonged period of "*improvement*" become varied into an Eagle, or that a Pigeon could by mere *Variation* ever become a Pig!—for he immediately adds, "as Mr. Wallace has recently remarked, with much force and truth, there must be, both with Natural and Domestic productions, a *limit* to change in certain directions."

In illustration of our meaning as to there being in Nature no proved permanent improvement in Instinct, nor Transmutation of one animal's frame into that of another of a different Class, we will take the case of the Caterpillar. A gross-feeding, ugly Worm, with sixteen feet, is in due time metamorphosed into a beautiful, airy Butterfly, a gaudy flower of the air with wings, floating in the sunshine, and feeding on the nectar of the plants. Here we appear to have got a creature greatly changed in form, and endowed with new and finer Instincts. But the change is merely temporary and individual; for here comes in Nature's Law of Counteraction, showing that in Nature there is no Continuity. For the next generation of this Butterfly will be a mere Caterpillar, without one particle of *improvement* on its parent, so that the caterpillar of olden time is *exactly the same as that of to-day*. No permanent

improvement whatever has taken place. There is no "Evolution" in the case.

Variation in Animal Life is of two kinds—that of Nature by limited Natural Selection alone; and that of Domestication, also natural and limited, but greatly regulated and promoted by Man. As we have already stated, the whole Animal world is in slavery, being subject to Man's sway, to be used by him at will, although always within the limits of Natural Law.

In Dr. Darwin's opinion, "the long-continued accumulation of beneficial variations will infallibly lead to structures as diversified, as beautifully adapted for various purposes, and as excellently co-ordinated, as we see in the animals and plants all around us." * This, in a limited sense, and if all *idea* of Æsthetic Beauty and the other Mental attributes are strictly excluded, may be allowed.

But in the same paragraph he writes: "In accordance with the views maintained by me in this work and elsewhere, not only the various domestic races, but the most distinct genera and orders *within the same great Class*—for instance, Whales, Mice, Birds, and Fishes—are all the descendants of one common progenitor" [This is certainly "*improvement in an unparalleled degree*"]; "and we must admit that the whole vast amount of difference between these forms of life has primarily arisen from simple Variability. . . . But our amazement ought to be lessened when we reflect that beings, almost infinite in number, during an almost infinite lapse of time, have often had their whole organi-

* "The Variation of Animals and Plants," p. 430.

zation rendered in some degree plastic" [Is this quite clearly established?], "and that each slight modification of structure, which was in any way beneficial under excessively complex conditions of life, will have been preserved, whilst each which was in any way injurious will have been rigorously destroyed."

We have thus made a great step in advance. But, of course, this is largely only matter of Opinion, remaining to be proved; for the opinions even of the greatest men are *not always consistent with themselves.* But it is well to note that, here at least, Darwin confines the effects of Variation within the limits, if not of a Species, yet of one "*Class*" of the Animal Kingdom—although his idea of a *Class* is certainly very extensive. Any suggestion of a Limit at all, however extensive, would be a most important admission. On this subject we may make a quotation from Prof. Huxley, as follows: "Whales do *not* vary in the direction of producing feathers, nor Birds in the direction of producing whalebone." *

Still further, if we carefully consider this subject, we shall see that Variability greatly promotes the beauty of Nature in every direction, and in a thousand ways, so æsthetically educating the eye and the mind of Man. Does not this manifold work give us further evidence of Design, in a way which mere Evolution by Natural Selection would fail to do, unless indeed by rare *Chance*, in which Darwin has no belief?

In relation to the subject of Variation, we quote from the opening address of the President of Section

* *Contemporary Review*, June, 1888, p. 849.

D (Biology) of the British Association meeting at Bath, September, 1888, the following sentences. Mr. Thiselton-Dyer, after referring to Lamarck's vague theory of Tendency, said: "The fact has been admitted by Darwin himself that Variation is not illimitable. No one, in fact, has ever contended that any type can be reached from any point. For example, as Weissmann put it, 'Under the most favourable circumstances, a Bird can never be transformed into a Mammal.' It is deduced from this that variation takes place in a fixed direction only, and this is assumed to be due to an innate law of development. But the introduction of any such directive agency is superfluous, because the limitation of variability is a necessary consequence of the physical constitution of the varying organism." We are glad to see this opinion confirmed by the President of the British Association at the Edinburgh Meeting, 1892. He said: "There is an impressive body of evidence furnished by the successive races of Plants and Animals which have left their remains sealed up within earth's rocky crust. Important argument is furnished by the absence of evidence of specific variations of organic forms. There is no conclusive proof that a single new Species has come into existence." The human races of Northern Africa and Western Asia were already as distinct when portrayed by the ancient Egyptian artists as they are now. "Shells which lived in our seas before the Ice Age present the very same peculiarities of form, structure and ornament which their descendants still possess."

Weissmann, like Lamarck, has pointed out the

remarkable persistence of plants and animals in Egypt. At Kew are specimens of plants from seeds found in Egyptian tombs, said to be four thousand years old. He explains the remarkable fact that vegetable organisms may after thousands of years reproduce themselves unchanged, by the principle of the *persistence* of the germ-plasm. In eggs of some Animals there is a short persistence: in human germs none. This subject we cannot pursue; but it is one of vast importance, and strongly indicates a great Natural Law throughout—to wit, that "Like produces Like," and only Like.

Darwinism, generally claimed by its extreme advocates as universal and unlimited in its operation, has not, we think, been advancing in public estimation of late years, although the publication of Dr. Darwin's "Life" stimulated popular interest in the subject. *Evolution under limitation has no doubt been somewhat generally accepted*, but not that extreme view of it which some writers seem to advocate. Max Müller, a well-known authority, writes: "Though everything I have written has been in support of the theory of Evolution, I have had to protest again and again against Darwin's interpretation of that theory." * Again: "No student of the Science of Language can be anything but an evolutionist, for wherever he looks he sees nothing but evolution going on all around him. . . . I believe I am correct in stating that at present the most competent judges consider the descent of men from any other kind of animal '*Not Proven.*'" † In his "Expression of the Emotions," p. 93, Darwin

* "Science of Thought," p. 89. † Ibid., p. xi.

himself wrote: "I recognize the insufficiency of my own hypothesis"; on which Max Müller remarks: "We cannot sufficiently honour the noble spirit that dictated these words, particularly if we compare it with the manner of other philosophers, who seem to consider the suggestion that *they could ever grow wiser as the greatest insult.* Love of truth is better than even the full possession of truth,—and Dr. Darwin knew it." *

It was not possible for a careful reader of Darwin's "Life" to lay it down without some feeling of admiration for the candour of the man, and sadness at his state of mind. Perhaps there is in print no other such example of simple honesty, and open-mindedness as this "Life" reveals. He was an original genius with grand aspirations for the future of Man, yet all rendered *absolutely futile* by his own Theories; for he confessed as his final belief that he and all other sentient beings are inevitably doomed to complete annihilation. "It is," he said, "an intolerable thought," but he seemed willing to await his approaching fate with almost cheerful hopelessness! Yet in this hopelessness he did not sit down in the spirit of martyr-resignation, nor even as if submitting under protest to the unjust sentence of a tyrannical judge. His submission was rather an apparent acquiescence in the absolute necessity and inevitable progress of an Evolution *inexorable, reasonless, and dumb.* As he grew older, he thought "Agnostic" would be the more correct description of his state, but, whatever the name, the bane of his condition was a state of mind apparently devoid of

* "Science of Thought," p. 298.

Hope. "Man," said Carlyle," has properly no other possession but Hope; this habitation of his is named the Place of Hope."

We have already alluded to an idea prevalent amongst modern Philosophers that an era is approaching when men shall attain to a condition of perfection, or one vastly higher than their present state. Amongst many other writers, Comte, Charles Darwin, and certain theologians represent different phases of this belief.

An explanation of what is described as a Negative Creed has recently been published, which is at least definite and intelligible. Its author informs us that he has drawn it up by special request.

Mr. Samuel Laing, certainly an experienced authority, gives the following as the "Eight Articles of the Church of No Belief" (Agnosticism):—

"*Article I.*—That the subjects which Positive creeds profess to define are, for the most part, unknowable—that is, beyond the scope of human reason or conception."

1. Some of them may be found to be to us unknowable, but none of them is beyond the scope of Human Reason to conceive or think of, and to form the subject of ratiocination for Mind, with thoughts that wander through Eternity.

"*II.*—That Darwinism—or, in other words, Evolution—by known or knowable natural laws affords the true explanation of all that (apart from Revelation) we do or can know respecting this inscrutable First Cause, its attributes and relations to man, and such mysteries as birth, life, and immortality."

2. This proposition may be true, but only in a limited extent, and cannot be accepted, any more than the statements of Revelation, except on evidence. Both must otherwise be held as mere affirmations. Some of Nature's attributes are self-revealed, while Immortality may be said to be affirmed by almost universal assent.

"*III.*—I have said 'apart from Revelation,' for a revelation, attested by prophecies and miracles, is a conceivable proposition, and might teach us things which, without it, we could never know. But it is a question of evidence, and whereas every fair-minded

man must admit that it ought to be extremely strong and almost irresistible, we find it to be extremely weak and wholly insufficient."

8. This may be admitted, except the last line, which many question, and it remains matter of mere opinion.

"*IV.*—It is insufficient, because it rests solely on the assumed inspiration of the Bible—a theory which breaks down when tested by the ordinary rules of criticism, and examined impartially by the light of modern knowledge, unbiassed by any violent prepossession in its favour from tradition and authority."

4. The *assumed inspiration* may so break down, but the Bible itself may still prove *as reliable as History or as any other ancient book*, if examined impartially by the light of Science and modern knowledge, unbiassed by any "violent prepossession" on *either side*.

"*V.*—The theory of Revelation breaks down, because an inspired revelation cannot contain falsehoods, and many of the statements in the Bible are demonstrably untrue, generally as regards the facts of the universe, and specially as regards the origin of man."

5. Apart from inspiration, a *true* revelation attested by prophecies and miracles is admitted to be a conceivable proposition, in so far as containing nothing contradictory of human Reason, and it cannot contain *falsehoods*. Its statements form ground for proof or refutation, scientific and logical. It must be admitted that the miracle of the *first* creation of Man is *not* logically impossible; demonstrably untrue it is not. Nothing whatever is really *known* on the subject.

"*VI.*—Thus far the Articles of the Negative Creed have been purely negative, and I believe that all who are called Agnostics would agree with them. There are, however, certain positive articles which are generally, though perhaps not universally, held. For instance, the denial of Atheism, and of a purely mechanical Materialism."

6. This may be so.

"*VII.*—Morals and Religion are products of Evolution."

7. This is a mere affirmation. With as much reason it might be said that Civilization itself is the product of Morals and Religion; and theologians with equal confidence affirm that Morals and Religion are the products of Revelation. Thus the question remains an open one.

"*VIII.*—Polarity is the great underlying law of all knowable phenomena, whether of the inorganic or organic universe, or of the spiritual world of conscience, morals, free will, and determinism."

8. This is an important and somewhat new doctrine, and may possibly prove to be true so far as the Physical world is concerned. It is not obviously true in the spiritual world, and certainly not so far as regards Conscience, Morals, and Free Will. Each of us can by introspection test the truth of this assertion.

So that this Creed, like other Creeds, is based largely upon affirmation, and must remain "Opinions."

But the world is indebted to Mr. Laing for reducing it to a definite form, which at least enables us to judge of its credibility. We elsewhere refer to his new theory of Polarity.

Dr. Huxley has favoured us * with an account of his own mental experiences, and with a definition of an Agnostic, a name of which he was the original author. After reaching intellectual maturity, he says, he was quite sure that he had not "solved the problem of existence, and had a pretty strong conviction that the problem was insoluble." Agnosticism is not a creed, but a method. "Every man should be able to give a reason for the faith that is in him; it is the great principle of Descartes; it is the fundamental axiom of modern science. . . . Positively, the principle may be expressed—In matters of the intellect follow your reason as far as it will take you, without regard to any other consideration." On this point thinkers generally will agree. Continuing, he says, if you tell a true Agnostic "that you had discovered that two and two make five, he would *patiently* ask you to state your reasons for that conviction, and express his readiness to agree with you if he found them satisfactory." We fear such magnanimous Agnostics are scarce; for they are frequently found somewhat impatient listeners to opposing opinions. If they are told of our conviction that the world was at the first not Evolved, but Created by the great Original Power (whose existence very few of them deny), we have seen no *readiness* to consider this conviction of ours. Perhaps they set it aside,

* In the *Nineteenth Century.*

with some indication that our idea as to "Creation" is beneath their serious consideration. Dr. Huxley, however, seems personally free of this imperiousness. Indeed he candidly adds: "I am deeply conscious how far I myself fall short of this ideal." On one point he certainly may appear imperious, and that is in his uncompromising criticism of the opinions of thinkers less highly scientific than himself,* while yet depreciating his own scientific knowledge.

Professor Huxley may be regarded as the leading thinker amongst Evolutionists (perhaps equally with Professor Tyndall), and a wise leader he is, carefully avoiding illogical dilemmas into which fall the ordinary writers on Evolution. This he seems to do by repudiating Materialism, and stopping short when in face of the Insoluble, and, if we are not mistaken, acquiescing in our entire ignorance of cause and effect. Nor does he generally sneer at his opponents. "I have," he says, "been seriously perplexed to know how the religious feeling which is the essential basis of conduct can be kept up without the use of the Bible. The Pagan moralists lack life and colour, and even the noble stoic, Marcus Aurelius, is too high and refined for an ordinary child." Yet this, the most noble and refined of Roman Emperors, condemned to cruel deaths more of his harmless subjects than even Nero! This not from religious bigotry, but purely from *his strict sense of the fitness of things and of his Imperial obligation to the national gods* of his all but universal Empire! † To any sense of justice in the abstract he

* "Essays upon some Controverted Questions," chap. iii. 1892.

† "Meditations of Marcus Aurelius," Bohn's Classical Library.

was evidently blind. Strange it is to see this "*noble* Man—worthy of the Universe," more tyrannical than Nero to the conscientious, if mistaken unbelievers in the gods, because they were such "from mere obstinacy," or, as a recent writer suggests, "because Christian thought was directly opposed to Greek ideal of social life." *

In the course of an article in another connection, Dr. Huxley wrote that the Materialist's position that there is "nothing in the world but Matter, force, and necessity, is as utterly devoid of justification as the most baseless of theological dogmas."†

And again referring to the Bible, he says, "it is written in the noblest and purest English, and abounds in exquisite beauties of mere literary forms, and finally, that it forbids the veriest hind, who never left his village, to be ignorant of the existence of other countries and other civilizations, and of a great past, stretching back to the furthest limits of the oldest nations in the world." . . . "The Bible has been the *Magna Charta* of the poor and the oppressed; down to modern times, no State has had a constitution in which the interests of the people are so largely taken into account, in which the duties, . . . of rulers are insisted upon, as that drawn up for Israel in Deuteronomy and in Leviticus; nowhere is the fundamental truth that the welfare of the State, in the long run, depends on the uprightness of the citizen so strongly laid down." ‡

* "The Church in the Roman Empire," by W. M. Ramsey, M.A. (London: Hodder & Stoughton).

† *Fortnightly Review*, February, 1869.

‡ "Essays upon some Controverted Questions," by Thomas H. Huxley, F.R.S., p. 51 (Macmillan, London, 1892).

Lamartine wrote of God:—

> "Space is His mansion;
> Eternity His age; day is His glance;
> The world His image. 'Neath His shadowy hand
> The universe subsists."

Lord Kelvin said, "It is impossible to conceive either the beginning or the continuance of Life without an over-ruling creative power."* Speaking of the Hebrew Scriptures, Sir William Jones, the eminent Sanscrit scholar, said that, independently of its origin, "it contains more sublimity, purer morality, more important history, and finer strains of eloquence than can be collected from all other books whatever." M. Renan has said that, "But for the Jews, the Hebrew Bible, one of the most important monuments of history and philology, would have ceased to exist."† Even Heine, perhaps the most defiantly irreligious of poets, "notwithstanding all his repudiations, believed in a Supreme Power. His sole *credo* is very characteristic. 'I may not be over-partial to anthropomorphism, but I believe in the Glory of God.'"‡ Spinoza says, "The first principle of the divine law, therefore, indeed its sum and substance, is to love God unconditionally as the Supreme good—unconditionally, I say, and not from love or fear of aught besides." Pythagoras thought that the knowledge of the "Being of beings" must be "incapable of being declared." . . . "The Divine Majesty has for our

* "Popular Lectures and Addresses," p. 350 (Macmillan, 1889).

† "Studies in Religious History," p. 168 (London: Richard Bentley and Son, 1886).

‡ "Life of Heinrich Heine," by William Sharp, p. 205 (Walter Scott).

sakes allowed itself to be circumscribed." And Herrick (A.D. 1591) well said :—

> "God is above the sphere of our esteem,
> And is the best known, not defining Him."

John Ruskin "has never wearied of levelling blows at the pride of Faith which imagines that the nature of Deity can be defined by its own convictions, and the pride of Science, which imagines that the energy of Deity can be explained by its own analysis." *

Theologians may hold that there is a contradiction between Man's Free-will and their doctrine of free-grace, but this is only apparent. Take the case of, say, King David, a man largely distinguished by both. The Grace he was favoured with did not limit the freedom of his will. Acting under it he was guilty of great crimes repeated more than once. Without calling in question the sincerity of his repentance, it did not always counteract his subsequent Free-Will actions. Sometimes the one and sometimes the other was his governing motive, and each was *independent* of the other. An examination of the lives of other Bible worthies gives the same result. Indeed it must be admitted that its biographies are singular in this respect, that instead of concealing or ignoring the failings and sins of its heroes as in "profane history," it exposes them into merciless publicity. This dual nature of the human Mind is farther shown in the character and actings of Baalam, Samson, Solomon and others.

A new disturbing element has recently appeared in Psychology, which claims to destroy the theory of

* "Life," by J. M. Mather, 1892.

Free-Will in man, and all the important conclusions founded upon it: that is, the somewhat prevalent idea that Man's Mind, under certain conditions of Hypnotism, can be controlled or influenced by another man. This, however, is quite untrue. The operator, in certain conditions, seems to assume possession of, or enter, as it were, by his own Will and feelings into the entire *organic* senses and instincts of the subject under his influence. The subject seems to see scenes absolutely unreal, and to feel whatever the operator's mind suggests in a manner so complete as to apparently usurp for the time being the *functions* of the subject's own Mind and Will and speech. This, however, is only apparently the case.

The result appears to be very mysterious; but let us apply our *Test* to it. The reader will perceive that the functions affected by the Operator—Organs, Senses, and Instinct—all belong to the NATURAL Sphere. There is no question that the Subject's Mind (the Man) is *entirely* free of the influence or even knowledge of the operation. Indeed the Subject's organs of sense, even while acting under the influence of the Operator's Mind, are absolutely free, and do not share the apparent pleasure or pain which is suggested by the operator. The moment the subject awakes from the trance, the apparently magical spell has ceased to exist, and the Man will repudiate all the alleged vagaries described by the bystanders. Our Test shows it must be so, for his Mind (Universal Sphere), always Supreme, is never affected in the least by the operations.

Thus it is obvious that throughout, the Man's freedom of Will has remained, and his Mind and

Body alike have been, and are, pure and free even of evil suggestion. In Hypnotism the Mind is in a state of complete rest and repose, which it never so perfectly is during ordinary sleep. It is oblivious to all its surroundings, quite as completely as when the body is under chloroform. The operation is one evidently founded on a nervous or physically diseased condition, and the matter should be left in the hands of learned experts. This investigation indeed is still being made by Savants in Paris and also in London. It was treated by a recent Berlin writer very fully.*

The Mind of the Subject evidently remains absolutely Free, and he is responsible only for all his doings, physical and mental, performed in a healthy state of waking mind. Mind is not physical Life, nor is Life Mind. In relation to the vagaries of Hypnotism, it may be said of Human Life that it—

> "hath bubbles as the water has,
> And these are of them." †

Hypnotism is by no means new. It was and yet is practised by the Fakirs of India, the Yoghees and other Indian Ascetics. By certain posturings and long continued partial suspension of vital functions they pretend to attain to unconscious endurance of pain and even of individual existence. Nothing useful or healthy has ever been obtained from it.

The Mystical system of Swedenborg (1688) has been almost forgotten, but nowadays new theories (very far inferior in a scientific sense) arise to attract

* "Hypnotism," by Alfred Moll (Walter Scott, London, 1890).
† "Macbeth," act ii. sc. 8.

popular attention. His Philosophy and Science were on the most expansive scale, and he seems to have aimed at being a modern Aristotle. Too visionary for his era, and too voluminous for modern readers, his works have failed to gain appreciation even amongst scientists the most advanced. The latest sensational system seems to be Theosophy, said to come to us from Central Asia, and to be a development or a perversion of Buddhism. No doubt there has long existed as a sort of protest against Materialism, a Spiritualistic theory, never very clearly defined.

May it be that :—

> " Unseen by human ken, there floats
> A Spirit Universe with secrets yet untold."

Or, as Shakespere has better expressed it :—

> " There are more things in heaven and earth, Horatio,
> Than are dreamt of in your philosophy." *

It need not be said that the manifestations of communication between persons in London with certain *illuminati* in Asia, as claimed by some apostles of Theosophy, appear to be impossible, and, until some reasonable evidence of such fact is clearly shown it has the air of a delusion, not to say a fraud.

We cannot even name the many theories which have been proposed to explain the true System of the Universe, but will here notice one of a character totally different from those preceding, and in itself extremely curious. Although based upon a very old

* " Hamlet," act i. sc. 5.

and occult belief in the number Seven, it is treated in a learned and philosophic style entirely free of Mysticism. Upwards of seventy years ago a professional gentleman in Edinburgh seems to have devoted almost a lifetime in writing a volume of five hundred pages, entitled, "A Theory of the Moral and Physical System of the Universe, Demonstrated by Analogy, in which the Elements of General Science are explained upon a Principle Entirely New." *

He eschews reasoning by Logical Syllogisms, and adopts that by Analogy and Induction alone. He says "our knowledge of Matter and Mind is only a knowledge of relation or Analogies. But these analogies are parts of One Great Analogy embracing all possible knowledge." "Every object, atom, thought, or idea are all parts of that Scheme." The key to his system is the *Septenary number*. "In the seven colours of the rainbow and the seven sounds of the octave, we observe a confirmation written in the book of Nature." He provides a typical scale which, by change of names, is applicable to all subjects. Thus—1. Elemental; 2. Mechanical; 3. Chemical; 4. Vegetable; 5. Animal; 6. Intellectual; 7. Moral. In several cases his application of the scale gives results very remarkable, as in that of the Visible Universe and in that of the Naturalist. In other cases the Analogy is less clearly evident.

But Mr. Macnab was too ambitious. He claimed the *Universal* application of his theory. The Universe was built upon this number. Like a vast arch or temple, its parts were seven, and every part was

* "By Francis Maximus Macnab, S.S.C. (London, 1818).

built up of seven parts, and all its belongings consisted of Seven indefinitely! The second half of the volume exhibited its application to religious questions, with special reference to "the errors of the Catholics," and to the elucidation of Scripture prophecy and the end of the world. In short, he seems to claim that the number SEVEN is the secret explanation of the Universe, and the key which unlocks its mysteries physical and spiritual! Here the failure was manifest. The book was the subject of ridicule generally, a result which the author seems to have expected, and indeed invited by an untoward attack upon the Critics, whom he designated as "Sophistical Apostates!" The Book failed, and is long out of print. We have given these extracts because it is now extremely scarce. Its style is singularly unique, and its argument original and uncompromising. Hence it appealed to neither the Theologian nor the free-thinker, nor indeed to any class, and was welcomed by none. The Author was a sincere believer in the Scripture history in its literal sense, and had he published only the first half of the book it would have deserved to survive, as a decidedly original contribution to Natural History.

SEVENTEENTH LECTURE.

INSTINCT AND REASON INCOMMENSURATE—EXTREME REVOLUTIONISTS—THE KEYSTONE OF THE ARGUMENT—ILLUSTRATIONS—ANIMAL SENSES AND CRIES—THE SOVEREIGNTY OF MIND—ANECDOTES.

IT must be admitted that the Evolutionists are not without numerous apparent evidences for their theories. Many of them may seem trifling, separately considered, but others are very perplexing to the honest seeker after Truth, and cannot be met unless by still stronger opposing ones. The extraordinary success of Darwinism among so many thinking men is, perhaps, to be accounted for chiefly by the sudden and prominent light which Dr. Darwin threw upon the *resemblance of Man's physical nature to that of the irrational animals.* His suggestions were so repulsive to human nature, and to theological opinions generally, that they, as already stated, were met by a host of hurried and illogical objections, which often tended to hinder calm discussion on both sides, and greatly aided the popularity of the new idea. Amongst the most difficult facts of the Evolutionists, to many persons, is the remarkable general resemblance of Man to the lower Animals, at least in the embryonic and earlier stages of his life, and indeed to some extent in his physical frame generally. To these we have already referred.

Then follows the existence of Rudimentary parts similar to those in animals, and even some purely Animal excrescences; but these are extremely rare and we need not attempt their consideration otherwise than we would the question of insanity. These subjects, as also that of Variations, we have considered elsewhere. The resemblances are numerous and important, but such only as to reveal the fact that Man *physically is an animal*, although not "one of the animals," and that one Great First Cause was the Architect of both—an architect remarkable alike for simplicity of design and economy of power.

But another theory of Evolution has somewhat recently appeared. Professor Joseph Le Conte, of California University, believes that Mind is evolved from dead Matter—a theory much more extensive than Darwinism pretends to. After a long but carefully arranged argument, he concludes, in what appears to be the creed of extreme Monism, as follows:—

"Man is endowed with, *is*, in fact, an immortal Spirit. . . . What are the phenomena of Spirit? Consciousness, Will, Intelligence . . . are some of them. But has not a Dog or a Monkey all these?" [No! perhaps Animal-Intelligence but no free-will nor Mental-Consciousness.] "Pressed with this difficulty, some have indeed felt compelled to accord immortal Spirit to higher Animals. But we cannot stop here. If to these, then also to all animals; for we have here only a sliding scale without break. Can we stop now . . . ? No, for the lowest animals and lowest plants merge into each other completely. . . . We must extend it to plants also. Shall we stop here and make immortal spirits coextensive

with Life? We cannot; for life-force is correlated with, transmutable into, and derivable from, physical and chemical forces. We must extend it unto dead matter also. Therefore, everything is immortal or none."

"I believe," he writes, "that the spirit of Man *was* developed out of the *anima* or conscious principle of animals, and that this, again, was developed out of the lower forms of Life-forces, and this in its turn out of the chemical and physical forces of Nature: and that at a certain stage in this gradual development, viz., with Man, it *acquired* the property of immortality, precisely as it now, in the individual history of each man, at a certain stage acquires the capacity of abstract thought." * But how *acquired?* here we have mere assumption waiting proof.

Our readers will observe that this writer plunges boldly into the wide sea of philosophic difficulties, which he proposes to get out of by leaps or bounds under "favourable circumstances" (unknown to science) from one stage or platform of existence to another and higher. Each *bound* until he reaches the dog stage being in the NATURAL sphere, is, perhaps, within the conceivable, but being entirely assumption remains to be proved by evidence of some kind or other, stronger than mere questionable analogy. But the bound from the Dog stage to the Man platform, from the NATURAL to the UNIVERSAL (Spirit) is, as we have shown by our *Test*, simply impossible. Thus our contention that Instinct (Animal Life) is incommensurate with Mind, remains

* "Evolution and its Relation to Religious Thought," pp. 293–5 (Chapman and Hall).

unshaken. The great gulf still remains, and cannot be bridged by *mere words*, such as stage, and platform, and bound.

The keystone of the great Argument still remains—on the one hand the respective characteristics of the Human Mind and on the other those of Animal Instinct, and their supposed relations.

That Mind (Reason) is absolutely different from Animal-Instinct seems to us so obvious a fact that it is surprising to see how bewildering the point has become. While all agree that there is a *difference*, we repeat that even among thinkers no decided opinion or clear perception seems to be held that they are *altogether incommensurate*. Among people generally, the young and the old alike, no more inveterate popular fallacy is entertained than this; that at least some animals possess a *glimmering* of Reason, something more than mere Instinct. No doubt the resemblance of Instinct to Reason is so great in several cases that only careful examination of the subject in all its aspects will reveal the distinction between the true and the imitation. But time will eventually dispel this prejudice, obstinate as it certainly appears, for although it is not founded upon sufficiently careful study, it is based upon a widely spread domestic and sentimental feeling, almost impervious to argument.

No matter how affectionate and likeable any pet animal may be, Reason is absent. In the most intelligent and noble specimens, Animal-Instinct can never be compared with Reason, even in the most untutored savage; for the savage is possessed of

Language, the greatest of all manifest distinctions. We know at present that, from a physiological point of view, the transition from any other animal to Man has not been established; and we likewise know that, if it ever were established, it would leave us exactly as we are, divided by language, as by an *unpassable* Rubicon, from every other animal. "The nearer the approach between the physical nature of an ape and that of a man, the wider and more wonderful will that gulf appear which language has fixed between them." *

It has been said that animals generally have a kind of speech; but such cries as they emit are instinctive only, and possess *no element of Language.* They are mere cries of instinctive alarm, or pain, or needful sexual or parental invitations or warnings. Man, being an animal, although pre-eminent and predominant is possessed of similar purely instinctive cries possessing no element of language. These he emits involuntarily in cases of sudden fright, or imminent danger, entirely without intention—and without any exercise of Reason (Mind), although Mind eventually restrains them. Mr. R. L. Garner, of Virginia, has constructed a most ingenious lot of instruments which give imitation of Animal cries of the Monkey. He says "that the Authorship of Man's being and that of all the forms which roamed abroad in the empire of Life, *must* be the same!" "They were all the effects of one great Cause . . . and he could see no reason why Nature should have drawn a line about this faculty, and made the rest a common heritage." This how-

* "Natural Religion" (Gifford Lectures, 1889), p. 278 (Longmans).

ever is not the case. He is gone to Africa to study the language of Monkeys, but if the above is a specimen of his logic, his report will not be of much value in the elucidation of truth. The mere registering of the respective sounds and cries of Animals, and the finding out the meaning of some of them will do nothing to prove the existence of *Language* in the ordinary sense of that word. The idea is only a little step more than that of the sentimental language of flowers.

The so-called language of Animals is simply instinct cries and sounds which may indicate their mutual instinct wants. But these possess no *Abstraction*, the indispensable element of language—which belongs to the *Universal* sphere.

Dr. Darwin has said that there is great difference between Man's actions and many of those performed by the lower animals. Man has to learn his trade by years of practice; a Beaver, on the other hand, can make its dam, or canal, and a bird its nest, and a spider its wonderful web, *quite as well* the first time it tries as when old and experienced.* This fact of itself is a marked distinction between Instinct and Mind. One of the best illustrations of the uniform distinction of Instinct is this: Dr. Rae says, "If the eggs of a wild duck are placed in the nest of a tame one the ducklings of the former will immediately endeavour to hide themselves or take to the water." †

But what is even still more remarkable, the young will uniformly do their proper work although

* "The Descent of Man," p. 68.

† "Mental Evolution of Animals," p. 196.

they may never have seen the operations performed by any other beaver, bird or spider. *No amount of Reason would accomplish this.* In many of Dr. Darwin's Anecdotes, given to show that Animals possess a measure of Reason, he seems to overlook the fact that Man is endowed with Instinct also, although far inferior to that of the Animals. In some respects, as, for instance, that of Attention and Observation as well as of the Senses generally, some Animals are incomparably superior. Regarding Speech, he says: "The faculty of Speech in itself does not offer any insuperable objection to the belief that Man has been developed from some lower animal." But, as already mentioned, an equally high authority with Dr. Darwin (on this subject) holds a different opinion. It is indeed impossible to ignore its importance.

As we have shown, anecdotes are numerous which are supposed to illustrate in some degree the existence of Mind in various animals. But if they are carefully examined, and freed of exaggeration, they will, we think, be *all* found devoid of any evidence of *Intellect*, and only instances of Instinct with a high degree of Imitation, Memory, and Cunning. That animals possess a language of their own is generally believed; but this is an erroneous idea. In a recent Lecture to the members of the Edinburgh Philosophical Institution, Sir John Lubbock, a most unquestionable authority, showed this in the case of Ants—generally considered the wisest of insects.

Sir John Lubbock describes the action of the mother wasp in supplying her young with a certain fixed number of grubs. How did she know when

she had made up the number of twenty-four? In the same mysterious way "the mother knew whether the eggs contained female grubs, and she supplied them accordingly." It seems obvious that Mind (or Reason) *would be useless here*, whereas Instinct can account for it all.

The question of Arithmetic is one unknown to Instinct, for it belongs to the class of Mathematics, *i.e.*, of *Universal* truths. The wasp *instinctively* makes twenty-four journeys, bringing twenty-four supplies of grub; and no doubt *all* mother wasps of this particular species will always instinctively do the same *without counting*, and be more *uniformly* correct in this number than Reason might be by counting them. We have already seen that Instinct, having no free-will or choice, must, under the same circumstances, continue to do the same thing, and cannot be otherwise.

This subject is fully treated by Sir John Lubbock in a recent work.* In it he relates several interesting experiments to prove animal intelligence, especially in Dogs. He says: "It certainly seemed as if our dogs knew when the moment of permission had arrived, . . . but scarcely so definitely as to place the matter beyond a doubt. Moreover, dogs are so very quick in seizing any indication given them, even unintentionally, that, on the whole, the attempt was not satisfactory to my mind." Further, in relating Mr. Huggins's experiments in Arithmetic with a very intelligent dog, he says: "Now Mr. Huggins did not consciously give the dog any sign, yet so quick was the dog in seizing the slightest indication, that he

* "The Senses of Animals," &c. (Kegan Paul, 1888).

was able to give the correct answer. . . . We explain the performance by supposing that he reads in his master's expression when he has barked rightly: *certainly he never takes his eyes from his master's face.* . . . The observation, however, shows the great difficulty of the subject."

This corresponds with our remarks elsewhere as to Animals reading their masters' wishes, and we are pleased to find them corroborated by so high an authority. As already shown, the Animals' Instinct-Senses are much keener than in Man; but yet the so-called Instinct-Mind is blind. This really forms a leading distinction between them; for while the main characteristics of Human Reason is *Light*, that of Instinct-Mind is darkness: hence the common phrase, the "Light of Reason." Wordsworth, speaking of the Thrush, thus alludes to the *darkness* of its Instinct—

> "he sings
> As if he wished the firmament of heaven
> Should listen. . . .
> His *darkness* doth transcend our fickle light!" *

We think the subject of the superior intensity of Animal senses over those of Man is a very important one in the Darwinian controversy. It appears to have been much overlooked by naturalists. The greatest of ancient poets, Homer, seems to have seen its importance with the acumen of a philosopher, and illustrates it very clearly by introducing the well-known episode of Argus in his fabulous adventures of Ulysses.† The famous wanderer, returning to his

* "The Excursion," bk. vi.

† "The Odyssey," bk. xvii. (Pope's translation).

home after an absence of twenty years, disguised in rags, is received at his own court with insolent neglect, and treated as a beggar by the courtiers. Neither his servant, nor his old nurse, nor his son, Telemachus, recognizes him. Even his beloved and faithful wife, Penelope, while treating him with gentle kindness, knows him not. But there was one friend, and *one only*, who did—his dog, now dying of old age :—

> "Argus, his dog, his ancient master knew :
> In vain he strove to crawl and kiss his feet ;
> Yet (all he could) *his tail, his ears, his eyes,*
> *Salute his master, and confess his joys.*"

But at first the master failed to recognize his old and faithful friend :

> "The musing monarch pauses at the door ;
> The dog, whom Fate had granted to behold
> His lord when twenty tedious years had roll'd
> Takes a last look, and having seen him, dies."

"A gentleman residing in Gosport was, when visiting Portsmouth, usually accompanied by his dog in the ferry-boat. One day it so happened that the dog lost his master somewhere in Portsmouth, and surmising that he had recrossed the water for Gosport, sped his way to the house of his bookseller, and intimated by every possible means his misfortune. 'What!' exclaimed the shopman, 'you have lost your master, have you? Well, here is a penny for your fare across the water.' The dog snatched up the coin, ran directly to Point Beach, dropped the penny into the hand of the waterman, and was ferried across with the other passengers." *

* "Animal Anecdotes," by H. A. Page, p. 80.

The reader will observe that the dog would naturally call at the shop his master usually frequented, expecting to find him, and certainly *not* for the purpose of begging a penny. The *suggestion evidently originated* with the shopman, who was intimately known by the dog; and no doubt the animal had interpreted his wishes revealed by his eye and action in producing the coin. The dog must have seen his master always giving a penny to the waterman, who would, *no doubt, know the dog well;* so that the whole of the incidents were greatly brought about by these two men, conjointly with the sagacious *instinct* of the animal in reading their wishes in their faces and gestures.

Mr. A. C. Rogers says: "If an animal does precisely the same thing that a man would do under certain circumstances, are we not justified in concluding that animal and man were moved by the same power?" Yes, possibly so, assuming that the animal did not merely *imitate* the man. But the difference between the animal's and the man's doings is this: *All* the animal's actions are done by the power of Instinct *alone*, while those of Man are only sometimes so, but at other times under the power of Reason, or of Instinct controlled by Reason. He further says: "Is not memory an act of reasoning? Is it simply instinct that induces a dog to starve itself to death on the grave of its master, or to risk its life unbidden to save that of a helpless child?" *

As these are very good specimens of the logic which usually supports the argument that Reason and Instinct are one in kind, we will try to answer

* "Animal Anecdotes," by H. A. Page, p. vi. (1887).

the questions. 1st. The animal may do some things same as the man by mere Instinct, when the thing done was really done by man's Instinct; or, if not so, then the animal may do it by its wonderful faculty of Memory and Imitation, greatly aided, it may be, by the *extraordinary* power of observation which it possesses. 2nd. Memory in animals is *not* an act of reasoning. In Man, also, it sometimes *is not*, as when it is exercised instinctively; at other times, however, in Man *it is* an act of reasoning. It is only affectionate Instinct that induced the dog to starve. Mind would have showed that to starve for any impossible result was *contrary to Reason.* 3rd. In risking its life unbidden to save a helpless child, a dog accustomed to the water is *merely performing its natural and proper work in the world.* It is compelled by this Instinct-motive, aided it may be by Instinct-affection for the child, to do so, and, having *no free will, it has no choice.* Had it failed to attempt the rescue it would have shown that it had no right to live, but was a mere impostor in the world.

There is another peculiar distinction between Instinct and Mind which we think has not been specially noticed. That is in relation to parental affection. With Man this continues throughout his whole life, with Animals it seems to completely cease in a few weeks or months; so much so that even the relation between members of an animal family seems to be very soon entirely forgotten.

The question of Instinct and Reason is very fully treated by Dr. Darwin, and he truly says that "it is often difficult to distinguish between the power of

Reason and that of Instinct." It is certainly so to those Evolutionists who repudiate Design, and believe that Man is descended by natural selection from the ape. But to those who believe, as Mr. Owen and others do, that animals were made by special design *for the service of man directly or indirectly*, the difficulty will not appear so great; for they see that each separate species, and every variety of each species, requires to be endowed with gifts and qualifications for performing the special service or services for which they were by Nature intended. If this were not so, what a failure and waste of power! That there is considerable waste of power now is obvious from Man's frequent ill-treatment of pet animals. But such waste, occasioned by unnatural confinement and forced associations, is contrary to Nature's laws of unity and economy and freedom.

Of these endowments Instinct is the general name: and its main aim, that of self-preservation, is necessarily common to all. It is not necessary in relation to *such services* to deny that in the Animal world improvements have been going on and are going on, within narrow *limits;* that is, the Natural limits of their several uses in the world. For if Man, in *his* great work of improving the world, requires, as population and civilization advance, increased aid from his servants the animals, it is natural to suppose that the irrational creatures will be found qualified to give it within *such definite limits*—that is, each would always be able *efficiently* to fulfil the special designed object of its life; for, if otherwise, the wisdom and *Design* which all Nature displays would be contradicted.

Dr. Darwin gives several examples of "Reason" in animals, supported by the highest authorities. We must observe, however, that to relate tales of wonder, especially in regard to one's own pet animals, is very epidemic, and is generally done without a careful study of the subject.

Dr. Darwin writes: "Of all the faculties of the human mind . . . *reason* stands at the summit. . . . Few now dispute that animals possess some power of reasoning." We must do so decidedly. Animals possess *no power of reasoning whatever*. Take, for example, the Ape. Mr. Laing tells us that "monkeys enjoy the warmth of a fire, but never put sticks or coals on it to keep it up—much less trying to kindle it when extinguished!" This is an excellent proof of the *entire absence of Reason:* for, even seeing men feeding the fire, they cannot infer any connection between the fuel and the heat, no matter how often they have witnessed fire making. But to resume Dr. Darwin's quotation, "Dr. Hayes remarks that dogs, instead of continuing to draw the sledges in a compact body, diverged and separated when they came to thin ice, so that their weight might be more evenly distributed." Here there was evidently the Instinct of self-preservation, for if it were Reason, surely the reasoning men ought to have known when the ice became thin and how best to obviate or avoid the danger. But Instinct was in this instance better than Reason. This special instinct was a *necessary* gift of the Arctic dogs, for devoid of it they would be *without qualification for their special work* in the world, and consequently worthless. Indeed many animals are rendered so by man's unnatural training.

How else can we account for the multitude of mongrel dogs, the pests of our streets; not even useful as scavengers, as in the East?

Dr. Darwin further writes: "When I say to my terrier, in an eager tone, 'Hi! hi! where is it?' she at once takes it as a sign that something is to be hunted, and generally first looks quickly all around and then rushes into the nearest thicket to scent for any game, but finding nothing she looks up into a neighbouring tree for a squirrel. Now do not these actions clearly show that she had in her mind a general idea or concept that some animal is to be discovered and hunted?" This he gives under the following heading, "*Abstraction, General Conceptions, Self-Consciousness, Mental Individuality.*" Probably the reader will look in vain for any proof of either. If the terrier had acted otherwise, would it not have been a proof that she was *no terrier*, and so one of Nature's occasional mistakes? She finds no scent of game, but sees from her master's eye that *he wishes her to make a search*, and to please him she rushes into the thicket. All this is purely Instinct; and *the moment the master retires* her eager search will end, for Instinct senses tell there is nothing to find.

Indeed, these instances, given or quoted by Dr. Darwin to establish his theory, are, it appears to us, by no means superior in that view to some others already quoted, and are easily explained, as previously shown. Evidently, therefore, the contradiction arises purely out of the circumstance that by most people *the current definition of Instinct is on one side restricted within too narrow limits, and that the*

action of Reason is correspondingly too widely enlarged.

Mr. Herbert Spencer recently published a new work dealing with the Morals of Animals. He evidently believes in Instinct as Mind in a less advanced stage of civilization, and, as usual, treats this question of Morals at great length. Of course it is vain to attempt any reply here, and we will merely refer to one of his illustrations. Speaking of Animal Acts, he says, "each must perform them subject to the restriction that they shall not seriously impede the like pursuits of others. Here, it is clear, we have duties imposed by virtue of the social state. The 'rogue' elephant who is expelled the herd for aggressiveness, or the beaver who is expelled the colony for idleness, are transgressors who prove to us the law."

Now our readers know that neither of these so-called acts of justice are necessarily the result of Reason, but both are quite within our Definition of Animal Instinct, which is this, that "*Instinct is limited to the consideration of the propagation of the species—the preservation of the individual life—the well-being of its offspring, and all that tends directly or indirectly to the gratification of animal pleasure, appetites and passions.*" Ethics, like conceptual thought and æsthetics, are beyond the reach of the brutes.*

The elephants and the beavers in expelling the offenders evidently acted entirely under such selfish Instinct motives, and without any idea of Morals or Justice whatever.†

* C. Lloyd Morgan.

† "Principles of Ethics—Justice," part iv. (Williams and Norgate, 1891).

If we review these numerous anecdotes, it will be observed that in most of them the evidence of Intellect (Mind) which is claimed for the Animals is really evidence against such claims. For, in general, the actions described in them either *could not have been performed at all by Reason*, or otherwise evidently could not have been performed so well as by Instinct.

We are convinced that, next to fear of punishment and hunger on the one hand, and kindness on the other, and perhaps also to the instinct of imitation, the chief factor in the training of animals to these feats of *apparent* Reason is the expression of the human face and eye. These reveal to many animals the wishes of their masters, as already stated. A collie will *instantly* read the shepherd's wishes, and turn the sheep as he desires; a single glance of his eyes being sufficient, often without a word or gesture being needed. This power of quickness of perception is really *marvellous*, and not generally understood as it deserves to be.

The reader will excuse the length at which we are discussing this question of Instinct; but he will perceive the reason to be its *primary* importance in relation to the theory of the Evolution of Man from the Mammal. *If we cannot see that Instinct and Mind are absolutely incommensurate, and that animals are possessed only of Instinct, then we must admit that the descent of Man from the Ape ceases to be inconceivable.* We do not say that such admission concedes the whole argument, but it lends an air of plausibility to the theory, which otherwise it cer-

tainly does not possess. Dr. Darwin shows us that he saw the very great significance of this argument, especially so far as Man and the Ape are concerned.

The popular idea that animals possess some degree of Reason is no doubt encouraged by certain apparent facts. Some men are so ignorant and uncivilized, and others so brutally degraded by vices, that particular animals are really in several respects more *intelligent* than they—even though absolutely devoid of Reason, for intelligence is not reason.

Animals, whilst never showing any natural improvement in the race, may, in some instances, when possessed of remarkable Instinct, temporarily show more intelligence than men of ignorant and debased minds. Even in men of high culture, human Instinct is of far greater use in the sphere of *Nature*, and is much more active in man's daily Life than Mind; for Mind, although contemplative in the sphere of the Spiritual and UNIVERSAL, more rarely interferes in his daily life. Of this fact we are generally unconscious, and consequently we, that is, our Minds, are apt to assume credit for very much action which is really Instinctive, and thus we do not see the incessantly watchful merits of the latter faculty. Mind is concerned with matters of a high sphere, and is generally satisfied to relegate all other matters to Instinct, and interposes only when need arises, while at the same time, unless in the case of disease, it ever reigns supreme.

We have already pointed out that Mind cannot know or understand Matter; but it is, we think, equally true that the Mind of Man cannot know or understand the operations of his own individual

Instinct. Mind can by introspection think of and contemplate itself, but the moment we begin to think of and contemplate our Instinct, instinct has escaped altogether, refusing to be questioned, and we find that it is Mind only that we are contemplating, after all. This difficulty or impossibility of its introspection confirms our belief that the two things are *essentially* different Mind being an entity, while *Instinct is merely "Animal Life," and in no degree a faculty of Mind.*

We have said that Mind can by introspection think of and contemplate itself; but even this is questioned by some writers. Thus Mr. C. H. Hinton writes: "The thinker can never be the subject of thought. . . . Thus we can never . . . think of the Mind of Man except as a material organ of some kind." * Now this seems to be one of those questions which become doubtful merely by being argued about. The simple proof is within ourselves. Let the reader introspect his own mind, and say whether he can do so or not. The fact, we think, rather is that he *cannot* think of his mind as a *Material* Organ.

There is a prejudice, or rather a *sentimental* feeling, very widespread on the subject of certain pet animals, which it is difficult to set aside in discussing the relations of Instinct to Mind in a logical way. When this is fostered, as we think it frequently is, and even by so judicious and pleasant a writer as Frances Power Cobbe, the reader will probably become quite friendly even with the Rat! While she is expatiating upon the wonderful feats of Dogs,

* "A New Era of Thought," p. 88 (Swan Sonnenschein, 1888).

Monkeys, and other creatures, the reader has some difficulty in refusing agreement with her throughout. But a little reflection will dispel the illusion that in *any* instance quoted by her there is evidence either of Mind (Reason) or of Moral qualities. Almost all her cases are those of domesticated animals, generally pets. She restricts Instinct within unwonted limits, and extends Reason beyond its due bounds, which, we think, illusively appears to obscure the gulf that divides them.

Animals can have no idea of Morals whatever, and their exhibition of Moral qualities is simply the outcome of their intense Instinct-affection and desire to please their masters. Miss Cobbe truly says that animals are not, "strictly speaking, virtuous even when they perform heroic deeds of self-sacrifice;" and again, "Man may justly appropriate to himself the whole existence of an animal." Again, we must in our estimate of the Dog's animal-consciousness "take into account the fact that he is the docile companion of a being who is morally free, and who is constantly teaching him some of the rules, though he cannot apprehend the *principles* of human Morality." She adds: "The influence of this reflex Morality is very singular." *

The idea that some animals possess a sense unknown to us may possibly be true, as illustrated by the stories of dogs and cats especially, which were able to return to their old homes after removal even blindfolded to the most distant localities. On this point Miss Cobbe wisely says: "The theory which best explains these facts is that the creatures in ques-

* "False Beasts and True," p. 150, &c. (Ward, Lock and Co., 1888).

tion have a certain sense of the Magnetic currents" in . . . marking the direction in which they travel. "Reindeer kids," says Dr. Ray, "when very young, and left alone, will in spring always turn North. . . . Buffaloes, whenever they are alarmed, always run Southward."

"A dog feels *anger* as we do; he is susceptible of *hatred*, . . . he is *jealous*, . . . he is *envious*, . . . he is a *glutton*, but not guilty of *drunkenness*." Dogs are only sexually in *love*. Their *maternal affection* is such that the mother will starve herself rather than forsake her offspring. *Gratitude* may be almost said to be a Dog's leading principle. *Fear* is exhibited by Dogs with singular variations. Some are models of Courage, Fortitude, Attention, and Faithfulness, to their masters. It is not clear that Dogs express *Regret*, but they seem to know Grief, Pride, and Vanity. They have a sense of their own *property*, and perhaps of Avarice, and it is said sometimes of Ridicule and *Humour*, which last we doubt. The claim for *Faith*, *Hope*, *Magnanimity*, is unfounded. What are described as such are mere results, modifications, and trained instances of their attributes of Memory and Imitation and the affection of Instinct. What is called "Association of Ideas" is merely another name for Memory. What is called "*Faith* is Trust in a beloved superior—perhaps the most beautiful of all the attributes of the dog." But this faith is perhaps instinctive experience and confidence in his master's Faithfulness. What is called his Chivalry and Self-sacrifice is simply the manifestation of his *natural* qualifications, which he *must* show, even risking his life for others, because, as

we have previously shown, he cannot help doing so.

Miss Cobbe says again: "In the region of *Passion and Emotions* he approaches us most nearly, falling short of us only where his Intellect" [Intelligence.?] "fails to apprehend the abstract objects which engage our feelings." Of Moral Free Agency he does not partake, but "his Allegiance to Man supplies him a shadow of duty." *

Writing of monkeys, Miss Cobbe says, "The nearer we approach to humanity, the more we are sensible that something is lacking — that great 'Something' which, for want of a better word, we must call by its old name, a 'Soul.' In watching even the most intelligent Ape we are borne down by the sense of what is wanting, rather than of what is present of the likeness to humanity." †

We are by no means satisfied that our Arguments will overcome the settled, fallacious opinion that Animals possess some Mind, and that Instinct is Mind in the bud; but it is difficult to give more direct proofs than we have already done. One more argument, however, we will offer.

It has already been stated that Mind is a Spiritual entity, and that all the ordinary *routine* even of Man's life may be, and really is, for the most part carried on by Instinct. Let us suppose, for illustration, that Men were all suddenly deprived of Reason (Mind); then, of course, their lives would be carried on by Instinct alone, and thus resemble that of the lower animals. If we consider this calmly, it will appear that even although their Memory of the past

* "False Beasts and True," p. 178. † Ibid., p. 55.

might remain, they could not sow corn, nor reap it, as now, nor make any tool, nor combine together for any purpose. From Memory they might proceed in the routine of their individual daily occupations, but everything they attempted beyond mere animal life would fail, just as the Apes now fail in any attempted reasonable occupations and work, even with the light of Man's countenance and encouragement to aid them. They would fail to cook food, and would live just as animals now do, on the fruits and herbs of the field spontaneously produced. They would fail to cultivate or otherwise to raise food, and no Improvement or Invention would be possible to them, because, as we have already said, Instinct is *blind*.

But their reign would be quickly ended, because the Animals around would immediately perceive *from their faces* that there was "no speculation in those eyes," * and that they were no longer king. If in any degree interfered with, they would individually attack their former masters, and quickly overcome them; for firearms would now be beyond their management, and combination would not be possible. *Of all the Mammals, there is none so Naturally helpless as Man.* Thus Chaos would come again, out of which there would be no natural escape, for then no improvements would be possible.

We have demonstrated by the aid of our TEST that Instinct is not merely different from, but absolutely *incommensurate* with Mind, and consequently it is impossible that it ever can Evolve Mind, not even with Ages of Time, although these were multiplied million of million times indefinitely. Evolutionists

* "Hamlet," act iii. sc. 4.

are ever calling in immense periods of Time to aid their Arguments. But Time never can make a false proposition true—not even can Eternity do this. The gulf between Instinct and Mind is impassable, and in no case whatever does the former possess Reason, even in the most minute germ or degree. From these several arguments it is evident that we cannot assume Instinct to be a stage in the evolution of Mind.

The argument of Instinct *v.* Mind has been all along conducted with perfect sincerity on both sides, and one naturally inquires why on this subject highly educated thinkers should differ so completely. May it not arise from the want of *clearer Definitions* of Instinct and of Mind, in which both parties will agree?—for without this no Argument can lead to any definite result. This need was first affirmed by Socrates, who insisted upon its primary importance.

Evolutionists evidently consider that Animal-Intelligence, Memory, Cunning, Animal-Consciousness, Imitation, Eccentricity, Experience, Caution, Obedience, Courage, Teachableness, Perception (of colour and form), Attachment (to persons and places), and the Instinct-Emotions of Gratitude, Faithfulness, Gentleness, Friendship and Affection, as well as Anger, Hate and Revenge, are evidences of Mind. But we submit that this is not the case; they are evidences of Animal-Instinct in its highest development, possibly possessing more Intelligence than some human Minds, but still absolutely different therefrom. All of these, perhaps in a higher quality, if not in a higher degree, are also possessed by the human Mind, yet all of them belong to the NATURAL

sphere, being the properties of mere Human Instinct.

But Mind alone seems possessed of faculties which belong exclusively to the UNIVERSAL or spiritual sphere, as we have elsewhere stated, such as Reason, Mental-Memory, Mental-Feeling, Will, Abstraction, Mental-Conception, Imagination, Taste, Mental-Perception (of Beauty and Sublimity), Inventiveness, Reflection, Reverence, Introspection, Consideration, (Ratiocination). Of these no Animal whatever is possessed in any degree, nor even of the perception of Musical Harmony.

Two French writers * have appeared to advocate the theory that the so-called Mental Life of Animals differs only in degree, not in kind, from that of Man. They endeavour to prove "that Animals display intelligence, and that they share in varying degrees many of the emotions which are often supposed to be exclusively characteristic of the human race." We elsewhere have conceded that they do possess both Intelligence [not Intellect] and Emotions, some of these perhaps in a higher *degree* than some Men, but in no case of the same *Kind.* †

From the previous argument it appears that *the Animal world is ruled and governed by "the Human face Divine."*

Dr. Livingstone, who saw more of wild animals in their natural state than most other men, seems to have believed that the fiercest denizen of the desert cowered under Man's eye. Such at least was the

* E. Alix and Dr. Foreau de Courmelles (Paris, 1890).

† "I am not prepared to credit our dumb companions with a single sentiment. Abstract emotions or sentiments *as such* are certainly impossible to the brutes." "Animal Life and Intelligence," by C. Lloyd Morgan, F.G.S., p. 403 (London, 1891).

impression derived from him by the writer. Others well able to judge have said that no wild animal will boldly attack a man to his face, unless in the dark. Indeed, some have held that no wild animal, unless under exceptional want of food, will approach Man's presence, unless it is disturbed in its lair, or has had its young carried off, or otherwise has been in some violent way interfered with by aggression upon its wonted rights. No doubt a pack of starving wolves will attack a travelling sledge party, but probably only the horses would be attacked, unless the travellers strike at them. So also the Man-eating Tiger of India sometimes approaches the village if her wonted range of ground be disturbed. Wild animals confined in caravans obey their keeper even when being cruelly treated, but he is always careful to keep his eye steadily fixed upon the animal's face. If otherwise, his life would be short, and experience proves this by too many examples.

Nor does it appear, either in the desert or in the caravan, that animals combine to attack Man—another proof of their possessing no Reason. If they did, how irresistible they would be! Some of the more defenceless animals instinctively combine for their mutual help and defence, but they never make any real combination for offensive operations, because this would imply some degree of Reason. Sir Dighton Probyn related that in India a trooper pricked a nest of wasps with his lance, whereupon the enraged insects sallied out and defeated the regiment.

Thus the *Sovereignty of Mind* is, we think, obvious, and the Animal world instinctively recognizes it in

the countenance of Man—their Master, certainly not their cousin.

The reader who wishes more definite information on this subject should consult a recent publication by Sir Samuel W. Baker, F.R.S., probably the highest authority we have.* He describes the Dog as Man's companion, and the Elephant as his slave. The Horse, we think, sometimes partakes of both these characters. These three Animals, we believe, are pre-eminent in Animal intelligence, while the Ape is so in imitation, and probably rank, in this view, in the order we here give them.

Here it may be well to attempt a Definition of terms having reference to Mind and Instinct, such as "Entity," "Fact," and "Condition," and their relation to the Natural or to the Universal Sphere, thus: "Matter," whether inert or animal (living), is an *Entity*, and, belonging to the *Natural* Sphere, is Mortal. "Instinct" is a relative endowment, not an Entity, but Body is, and all belong to the *Natural* Sphere, and are Mortal. "Mind" is an *Entity* belonging to the *Universal* Sphere, and is Immortal. "Entity" is a real being, thought, or fact. "Fact" is an act, an event, a reality, and may be physical or Mental. Goodness, faithfulness, affection, and the like, are not Entities, but *Conditions*, and may relate to both Spheres. These distinctions, if kept in view by the reader, will render our criticisms more intelligible.

Truth, as we have seen, in its highest sense, belongs to God, its investigation being given to Man.

* "Wild Beasts and their Ways" (Macmillan and Co., 1890).

EIGHTEENTH LECTURE.

INDEX OF CIVILIZATION—THE ORIGINAL SAVAGE—PREHISTORIC MAN—ANCIENT RELIGIONS—RENAN—EGYPT—GREECE—ROME—GENESIS AND CREATION.

TO give a concise Definition of Civilization would be a very difficult task. The true index of it in any nationality is, we think, the purity of the people's morals, and the free circulation of justice—both of which, be it remarked, belong to the *Universal* Sphere. A writer of the last century, perhaps in the presence of the French Revolution, said it was vain for so immoral a people as those of that era to cry for "Liberty and Equality." There is profound truth in his proposition, for, even though otherwise intelligent, "no immoral people could ever devise for themselves a practically good government; and, on the other hand, no government, however strong, could long tyrannize over an intelligent *and* moral people." Coleridge truly said:—

> "The sensual and the dark rebel in vain,
> Slaves by their own compulsion! In mad game
> They burst their manacles, and wear the name
> Of Freedom, graven on a heavier chain." *

So also Herbert Spencer: "The welfare of a society, and the justice of its arrangements, are at bottom

* "France: an Ode."

dependent on the character of its members. . . . There is no political alchemy by which you can get golden conduct out of leaden instincts."

Perhaps it will be admitted that a high refinement in Arts and Poetry is one great criterion of Civilization. "Art," said M. Renan, "is the child of society with lofty aims, living for glory and the ideal." We may even say that they are the natural concomitants of Civilization. It is, however, remarkable that in almost all nationalities their earliest artists have also been their greatest.

Job and Solomon were greater philosophers than any in their succeeding generations respectively were. In England one of her earliest poets, Shakespere, is still her greatest. In the Latin nations, the same may be said of Dante. In ancient Greece they had no poet so great as their first—Homer—nor any sculptor to compare with their first —Phidias. In prehistoric time there are, as we have seen, indications that the oldest Chaldean and Egyptian Architecture and Sculpture surpass *all* their subsequent Art in *exquisite beauty and refinement*. Prof. Draper says that "Anatomically we find no provision for the improvement of the Moral, save indirectly through the Intellectual. . . . It is a mistake to make the progress of Society depend on that which is itself controlled by a higher power." *

These circumstances are worthy of note, without inferring from them that all these nationalities were more civilized in their earlier eras than in their later periods; for, whatever may be inferred as regards the others, can we say that our own country is at

* "Intellectual Development of Europe," vol. ii. p. 360.

present less advanced in civilization than in the Elizabethan age? "The calamity of Bacon's age was that the lie had sunk into the soul of men in other respects great." * And according to Henry Morley no country in the world has attained to a fully civilized society, "for at this day the most advanced is not half civilized." Neither Art, nor any other single characteristic alone, is the true index, but a combination of qualities, *Morals and their concomitants being the chief.* Indeed, it has been said that the best index of the civilization of an age is the Moral condition of its best men.

A recent French writer, speaking of the secret of China's extraordinary *National* longevity, and the conditions of her liberty of development, says: "We speak of that state as most civilized, in which on a given area the largest number of human beings are able to procure and distribute, most equally amongst themselves, the most well-being, liberty, justice, and security." † And this he claims for China.

A learned French writer says that "Civilization is the resultant of all the efforts which Man makes to live the true human life, superior to the instinctive and animal life—in one word, the life of the spirit. . . . It marches onwards towards an ideal, always very remote. This ideal is composed of knowledge, of morality, or of justice, and of beauty," ‡ all belonging to the *Universal* Sphere.

Perhaps the most popular definition of Civilization,

* Bacon's Life, by Prof. Nichol, p. 21 (Blackwood, 1888).

† "China," from the French of G. Eug. Simon, p. 8 (Sampson Low, 1887).

‡ "The History of Religions," by Prof. Reville, D.D., translated by A. S. Squin, 1884, p. 218.

however, is that which is indicated by the national treatment of woman. In this view, it appears that the Hindoos and Mohammedans are the least civilized, while the English and Americans are perhaps the most so. On the other hand, Mr. Lecky, speaking of the consideration for Animals as an element of public morals, said that "the Mohammedans and the Brahmans have in this sphere considerably surpassed the Christians." According to Prof. Sayce, a claim might be made for the most ancient peoples known, to rank first in Civilization. Amongst the Accadians, he tells us, "it was the mother, and not the father, who stood at the head of the family. . . . Woman in Accad occupied a higher position than she did or does among the Semites," their successors.* A French writer has said that "all the evil that women have done to us comes from us, and all the good they have done to us comes from them."

The ancient kingdoms of Mexico and Peru seem to afford a glimpse of Civilization altogether unique. The Incas of Peru, when conquered by Pizarro (A.D. 1532), were the religious and civil rulers of a people of somewhat advanced civilization. Their Sun-worship was originally comparatively pure and beautiful, although even then becoming degraded. "They believed in a Great Spirit, the Creator of the Universe, *who could not be represented by any image, nor dwell in a temple made with hands.*" They also believed in the existence of the soul hereafter, and in the resurrection of the body. But they also believed in other subordinate deities, of these the Sun being the chief. "They reverenced the Sun as the source

* Hibbert Lectures, p. 176 (1887).

of their own royal dynasty; and numerous altars smoked throughout the land with offerings burned in his worship."

The country then contained thirty millions of inhabitants (now not nearly that number), and was extremely rich in gold. Regarding the origin of the Incas nothing definite is known, as they possessed no writings, a remarkable fact for a Nation otherwise so advanced. But tradition gives A.D. 1042 as the date of Manco, the first Inca. Long before this era, however, a *previous kingdom* had existed, during which the people dwelt in large flourishing cities. Ruins of grand works are found still in these countries, showing a great massiveness of masonry and colossal statuary, with a knowledge of Mechanical Arts, *indicating an advanced civilization, much beyond that of the Incas*, who had succeeded them. This furnishes another instance of *Degeneration* such as we have elsewhere insisted upon. The Architecture of the Great Temple was original, and the masonry so perfect as to render the joints of the great stones almost invisible, reminding us of Baalbek. Nothing is known with certainty of their religion, but apparently it had been *a pure theism*, thus indicating even the still higher state of its ancient civilization. They were evidently a different race from their successors, and of altogether unknown origin. Can we call such people *Savages*, or claim any real advance in civilization for the present inhabitants of these countries?

The general deterioration of modern, as compared with ancient architecture, and the decadence of mechanical knowledge, meet us here, as almost

everywhere. Mr. Ricalton, writing of the wonderful old ruins of monuments and shrines in Ceylon, China, and Burmah, says, "They are still erected near the temples; but those of modern construction are small and unimportant when compared with those that have withstood biennial monsoons for two thousand years; even their half-buried ruins are stupendous." *

The evidences of advanced civilization in the more ancient nationalities of the East we have considered elsewhere. In Greece the Athenian worship of Dionysus shows a peculiar state of refinement existing with a strange exhibition of superstition. The Tragedies of Æschylus (B.C. 472) and of Sophocles and Euripides (B.C. 540) are still the world's models of beauty and nobility of thought, and indicate a then state of government in some respects singularly just and good, but destined soon to deteriorate and then decay. After the age of Socrates and Plato (B.C. 469 and 429), who left a legacy of Philosophy to enrich the world, Greece having become famous in arms, carried Western Civilization into the heart of Asia. There and in Egypt it was dissipated, if not lost. Eventually the greatness of the Roman Empire was evidently built up upon the genius of Greece, as that of Greece had previously been on that of Chaldea and Egypt.

The early commonwealth of Rome was distinguished by remarkable purity of manners. "The Latin yeomen brought up their children in a humble fear of God, or of the gods, as rulers to whom they

* The *Academy*, August, 1891.

would one day have to give an account." "The change of manners is assumed by some to have come in with the Cæsars; . . . the perfidy and profligacy of which we read with disgust in Tacitus and Juvenal, are regarded as the offspring of despotism." With the previous decay of morality the administration of Justice became corrupt, and with the usual results. Julius Cæsar, one of the greatest reformers and wisest governors that Europe has known, was not permitted to stem the tide of corruption, which he had evidently planned to do. His successors were, with one or two exceptions, atrocious. Caligula was a savage. It remained for Nero, the pupil of Seneca, the accomplished artist, painter, sculptor, musician, and singer, the sentimentalist who sighed when called to sign a death-warrant, "it was reserved for him to exhibit the most detestable qualities ever witnessed in any human being." He revelled in deeds of cruelty, and invented new ones.

With the general corruption of Morals, Religion of course decayed. The military genius and discipline of the Roman armies had saved the troops from the general degeneracy of the city of Rome. "The gods of Latium might perhaps be supreme in Italy, but the conquerors encountered other nations with other creeds, and it fared with the Romans as it fared with the Israelites among the Semitic tribes of Canaan. The Israelites identified Jehovah with Baal. The Greek taught the Latins to see in their own Jupiter and Minerva and Venus, the Zeus and Pallas and Aphrodite of Homer and Hesiod. With the new names came the impure mythology of the

Hellenes, and the Latin morality, which was founded in religion, dissolved and disappeared in the presence of Deities whom it was no longer possible to respect. . . . The public ceremonial survived, but the heart had gone out of it. The fear of God departed, and Morality and Justice departed with it." *

The late M. Ernest Renan wrote: "Three histories combined to constitute the history of Civilization—Greece, Judea, Rome. . . . Roman history is none the less part and parcel of the histories of Greece and Israel, . . . which are the pivot of all the rest, and which we may call *providential*, inasmuch as they have their appointed place on a plan which is elevated above the chops and changes of daily life. *I say Providential, not Miraculous.* . . . If there is such a thing as one miraculous history, there are at least three. If supernatural intervention is the sole explanation of the one, so it must be of the others. I will even add, that in my opinion the greatest miracle on record is Greece herself." † We quote these passages to show how this brilliant writer seems to have ignored the Egyptian and Chaldean history, civilization, and philosophy, with which the early Greeks so evidently enriched their own. From the early dawn of Grecian learning it was the practice of many Greeks to travel in the East; but the "Wise Men of the East" despised Western wisdom too much to copy it. The Jews were carried off to Babylon by force. They took their manners and laws with them, and several of them rose to positions

* "Short Studies on Great Subjects," Third Series, by J. A. Froude, M.A. (Longmans and Co.).

† "History of the People of Israel," p. x. (Chapman and Hall, 1889).

of great influence, but maintained their own national characteristics throughout.

But we also wish to draw attention to the logic of this eminent author. He appears unintentionally to confuse the three words Providential, Miraculous, and Supernatural, by trying to make an opposition between the Providential and the Miraculous which cannot exist. It seems logically impossible. What is providential is not natural; for, if natural, why providential? The very word implies Supernatural, and exactly the same may be said of the Miraculous, which is almost equivalent. Hence confusion arises from the multiplicity of words when only two can have meaning. *Every event is either Natural or Supernatural,* and the other term may disappear. As to his argument *generally*, we of course do not attempt any criticism.

It is to be feared that Civilization still remains one of the words which wait for a clear definition. The previous methods of promoting it evidently do not commend Fraud and Fire-water as a success. Commerce and gunpowder have been the great civilizers; the more of the one and the less of the other, the better in the interest of religion and morality; but when the slavedealer opposes the sword must be drawn.

Yet one other definition of Civilization has been offered—that of Religion. "Religion," says Goethe, "is not an end but a means, whereby to reach the highest culture." Theologians hold that Morals are necessarily included in this word, while others imagine that Religion has a much more restricted meaning. It must be admitted that the various

religions which in ancient times succeeded each other really appear to be largely an index of the Intellectual Civilization of their eras. Thus, the belief in one *spiritual* Supreme God, as held by Job and also by Moses, indicates a purer and higher Intellect than that of the *materialistic* Sun-worshipper, however simple and beautiful his adoration may have been. The addition of the moon and planets to his worship certainly indicates a still more material and illogical service. The worship of Bel or Belus was sun-worship, followed by various additions (as of Astarte, Baal, and other Fire gods under numerous names), which led to human sacrifices, evincing an immense fall in intellectual civilization and true refinement. The worship of Animals, first the Serpent, and the Apis Bull, gradually descending to cats, insects, wooden images, and Moloch worship, indicates a corresponding farther degradation of civilization, and a state of morals and manner sadly debased, such as history reveals. As we have seen, Zeus, Jupiter, Mars, Saturn, Venus, and Bacchus were probably Eastern gods, disguised under a new Mythology. In Greece, and especially in Rome, the State Laws were a singular mixture of wisdom and justice with cruelty and oppression; but the lives of some of their foremost men may not be examined, while their amphitheatres seem to have become vast altars for brutal and human sacrifices disguised under classic names. The great Roman Empire became immoral, and eventually utterly demoralized, and so fell an easy pray to the Goths and Vandals. It would thus appear that Theism was the index of a higher, while

Polytheism was that of a lower Civilization, and becoming yet lower as the number of its deities increased.

Professor Agar Beet suggests a new test of Religion in relation to Civilization.* He wishes to show that "every Mahommedan and every Buddhist Nation is and has been sinking into helpless and hopeless decay." "The only progressive nations in the world are," he says, "Christian Nations. Even the non-Aryan Nations which have accepted Christianity have left far behind the Aryan Persians and Hindoos."

Almost all writers seem to assume that Civilization has been progressive, without considering the *possibility* not only of eras of retrogradation, but even the loss of knowledge in science, art, and literature previously possessed. A recent writer says, "'Looking back as far as that" (any indefinite number of centuries), "we behold the world wondrously like what it is now, . . . and enacting very nearly the same scenes. Nations live in families, clustered within cities, are governed by laws or ruled by monarchs, carry on commerce and wars, extend their limits by conquest, excel in all sorts of useful and 'ornamental arts.' . . . The conclusion is clearly forced on us, that so complicated and perfect an organization of public life, a condition of society implying so many discoveries, and so long a practice in thought and handicraft, *could not have been an early stage of existence.*" †

* *Contemporary Review*, January, 1891.

† "Chaldea," by Z. A. Ragozin, p. 97 (Unwin, 1887).

This is an excellent epitome of the facts, but is not the conclusion drawn from them altogether an assumption? The writer gratuitously seems to *assume* as fact that primeval man was a savage, and that long dim vistas of time, vaster than the space as yet laid open to our knowledge, had passed, during which he had progressed upwards to the comparatively high civilization above described. This is possibly true, but no one whatever knows that it is so; and with at least *equal* warrant it might be *assumed* that primeval man was intellectually, morally, and artistically more civilized than the most advanced peoples within our historical vista of knowledge. *For Civilization does not necessarily consist in the possession and use of great mechanical works and inventions, but rather in mental endowments and the possession of intellectual genius and capability of inventing and constructing all such, as discoveries of materials and need of such inventions and works arise.* Whether any prehistoric people possessed such and subsequently lost them is unknown; although such a fact would explain some difficulties and other facts as yet inexplicable.

We by no means suggest this view as the only probable true one, but merely to show that it has *as much* foundation in fact as the other, so often assumed as if it were necessarily so. The question should be allowed to remain an open one until some further evidence arises.

The great founder of Christianity, says a recent writer, "instead of trampling on the world like the Stoic, or despising all but his own race, like the Jew,

would have us reverence the world, and love it. . . . While Stoicism, then, from its imperfect human sympathies could not, and Judaism from its narrowness and pride, would not make headway in the virgin soil of barbarism, Christianity, by giving free expansion to the Mind, heart, and imagination, was in its essence favourable to an advance in Civilization." *

If we assume the somewhat popular idea that the original Man was a Savage, there must have been a long period or series of eras of improvement before the high degree of refinement (of which we find traces in the *most ancient* of the ruins time has left) would have been arrived at. Or, on the other hand, we may assume that the original generation of Men was possessed of a civilization of the highest class. It may be that they were the pioneers of Wisdom (philosophy) and Art to succeeding generations. Which theory is the true one, we have no means of deciding, but it seems in view of the numerous indications already mentioned, or which will yet come under our consideration, that the second theory is quite as probably true as the first one. But in both theories it seems evident that neither improvement nor deterioration has been uniform in action, but the reverse.

We have tried to combat the assumption—for it seems nothing more—that Man was originally a Savage, but all our arguments will fall pointless upon some scientific Philologists, who seem to think their views so obviously true as to need no proof

* "Civilization and Progress," by John Beattie Crozier, p. 444.

beyond affirmation. Thus a learned Professor says: "It is hard to place one's mind on the low level of the infantine intelligence of a savage such as early Man *must have been.* But some aid to that end may be found in the perusal of what the savages of modern times think." The tendency of the savage mind is "to endow the Sun, the Moon, the Sky, or any feature of the physical world admitting of being readily individualized, with a soul and body, with parts and passions like their own."

Much confusion has arisen from thinking that the extreme Savagehood found to exist with every discovery of outlying tribes in all quarters of the globe represents the *original condition of the human race,* at the time when such outlying peoples separated from the original home of Mankind. We have shown that this is not supported by a single fact. Indeed the contrary may be inferred with much more probability from the observation that, in all such cases of separation, *deterioration* begins, and, where a people is by any cause left alone, goes *on with rapid declension,* ending perhaps in course of ages in cannibalism. This is not the case in large communities under a National government, as, for example, amongst the Chinese and the Ancient Peruvians.

The theory that Mankind were originally Savages appears to us, therefore, to arise chiefly from this erroneous supposition.

Our Professor then goes on to say that "The ancestors of the Greeks and Hindus are found to be at one with those of the Chinese and Polynesians of later times in making the Sky and Earth a wedded

couple of *savages like themselves.* Similar myths are also found in the Norse Edda and in the Celtic." *

But he cannot show that such poetical myths really are indications of an *original* Religion. Like Fetish worship, we believe they are more probably the mere remains of an ancient *prior* religion, originally pure, but now become decayed and corrupt. They are no doubt old, but are without date, and quite unsupported by any such ancient monuments as the *evidently older* Sun-worship can boast of. Could the originators of the primitive Sun-worship, or even the subsequent classical Greek Mythology which it suggested, arise from their tombs, would they not stare at such assertions? It is just possible that they might think the name of "Savages" in some respects quite as applicable to us of modern times.

A recent traveller in Upper Egypt speaks of the magnificent remains of Thebes, a very ancient city, and the capital of the southern kingdom of Egypt—evidently once of enormous extent, but now "a stupendous pile of ruins," as even "vaster and more impressive than the Pyramids." Its greater monuments are older than Moses, indeed much older, and the oldest are the finest; the less ancient evincing a decided decline in beauty and taste, although more extreme in dimensions. Still more ancient was Memphis, once the capital of the Northern kingdom. There are no remains of that city, but varied evidence of its extreme refinement in Art. But we have not yet found the beginning of Egyptian

* "Hibbert Lectures," 1886, by Prof. Rhys (Williams and Norgate).

history. "The dawn is long past," writes Amelia B. Edwards, "when we catch our first glimpse of that far-distant epoch, when Mena, Prince of Thinis, founded the first monarchy." That earliest landmark carries us back some 5,000 years B.C., and, even Mena, has a background of tradition behind him. "It is possible, perhaps probable, that a gigantic work of Art belonging to that remote age survives to this day in the great Sphinx of Ghizeh."* "By the epoch of the Ptolemies the primal Egyptian idea of beauty and effect had in a great measure been lost." We know that their finest works were old before the ancient history of Rome begins. Their builders *must* have been as different from *savages* as can be imagined. A people so highly refined in Art were probably much more advanced in Civilization than any of their successors.

Most of the Nile monuments, whether of the earlier or of the latter dynasties, are covered with huge figures of kings and gods, with every semblance of a face erased,† an act "by some ascribed to Christian, by others to Mahometan Savagism," and not improbably due to the modern Egyptians themselves. No doubt some tourists behave disgracefully, and chip off bits of beautiful carvings and painted hieroglyphs.‡ A present-day traveller relates that some of the dealers at Philo scrape off the beautiful blue colouring from the ruins to stain the articles they impose upon the English and

* "Pharaohs, Fellahs and Explorers," p. 88 (Osgood, McIlvaine, and Co., London, 1891).

† "Ulysses," by W. Gifford Palgrave, p. 92, &c. (Macmillan, 1887).

‡ "Leaves from an Egyptian Note-Book," chaps. xi. and xvi., by Isaac Taylor, 1888.

American relic-hunters as genuine "Anteekahs." May not some far-future historians quote these as instances of our civilization in the nineteenth century?

What is called "savage life" is sometimes found in peoples so advanced in civilization as the Greeks. Mr. Lang writes: "The whole of Greek life yields relics of savagery when the surface is excavated ever so slightly. . . . Though the fact has been denied, . . . the fact remains that the Greeks offered human sacrifices, . . . one of the proofs that the Greeks had passed through the savage status. . . . The terrible Aztec banquets, of which the gods were partakers, are the most noted examples of human sacrifices with a purely cannibal origin." * Professor Robertson Smith says, "When the human victim is a captive or other foreigner, the human sacrifice may be regarded as a survival of cannibalism. Where, on the other hand, the victim is a fellow tribesman, the sacrifice is expiatory or piacular."

Human sacrifices evidently arise out of, and indicate a state of Savagehood, which, had it been the original condition of Man, or even had it at *any time* been the universal condition of Men, would, we think, have been an insurmountable barrier to advancement. Indeed it is not understandable how any Modern Civilization whatever could *naturally* arise out of it. The question now to be asked is what was the condition of primitive Man? The savage myths of the origin of the world and Man were as inconsistent as they were fanciful. In con-

* "Myth Ritual and Religion," chap. ix., by Andrew Lang (Longmans and Co., 1887).

trast with the multitude of "these childish pieces of anthropomorphism we have the famous and sublime speculations of an oft-quoted Vedic hymn of the origin of things," from a book which, however, is supposed to be "late." We quote a few words of it:—

"In the beginning darkness existed, enveloped in darkness. . . . That One which lay void and wrapped in nothingness was developed by the power of fervour. Desire first arose in It, which was the primal germ of Mind [and which] sages, searching with their intellect, have discovered to be the bond which connects entity with nonentity. . . . Who knows whence this creation? The gods are subsequent to the development of this [universe]; who then knows whence it arose? From what this creation arose, and whether [any one] made it or not, He who in the highest heaven is its ruler, He verily knows, or [even] He does not know." "Abstract cosmogonic speculation," says Mr. Lang, "like that of this hymn, is the rare exception which we seldom meet with except in the records of a civilized people."

Max Müller says, "I have taken some of my facts from the Rig-veda . . . simply because we possess no literary documents, so far as I know, that can bring us nearer to the very cradle of religious concepts, at least on Aryan ground." * A learned writer says, "Heracles is the Semitic Sun-god under another aspect. His twelve labours are the twelve labours of Isdhubar, the Accadian hero, whose story may be read in the fragments of the great Chaldean epic, which was redacted into a single whole many

* "Natural Religion," p. 144.

centuries before the Vedic hymns were first composed." *

In Dayanaud's Hindi version of the Vedas is given a nationalistic interpretation of their ancient writings. As a direct revelation from the Supreme Being they must be correct, and *cannot* conflict with the truths of Science. By the most incredible interpretations he persuaded himself and others that everything worth knowing, even the most recent inventions of science, were alluded to in the Vedas! Steam engines, railways, and steamboats were known, at least in their germs, to the poets of the Vedas; for Veda means divine knowledge, "and how could anything have been hidden from that?" † The Vedas give no support to many of the present objectionable usages and customs, nor to the doctrine of the transmigration of souls.‡ Here we have another incidental proof of subsequent Deterioration.

Speaking of the Sanskrit language, Sir William Jones said "It was more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either"—still another proof of Deterioration.

Mr. Lang says that when we speak of "the savage mental condition, we mean the mental condition of all uncultivated races, who still fail to draw any marked line between Man and the animate or inanimate things," as if all nature and physical phenomena were endowed with human attributes. "This state of mind is nowhere absolutely extinct." § It

* "Origin of the Aryans," p. 305 (Walter Scott, London).
† Professor Max Müller's "Biographical Essays," p. 170.
‡ "Religious Thought and Life in India," by Sir Monier Williams, p. 18.
§ "Myth, Ritual, and Religion," vol. ii. p. 325.

seems to be generally supposed that all civilized peoples have passed through a previous state of so-called savage life, but at what period of their history there is no evidence to show. *Whether this state of "savage life" was the primitive life or the result of a long era of deterioration remains an absolutely open question.* The whole subject has been discussed at great length by eminent authorities, but, in our present state of knowledge, without any definite result on this point. The remarkable fact has been ascertained that there is, and has been, a decided *general resemblance* between the myths and legends of almost all the savage or half-civilized peoples of the globe, even those most remote, especially in respect to their absurd inconsistencies, multitudinous gods, human sacrifices, cruelties, and immoralities. May not this fact possibly indicate that, when these peoples originally separated from their original centre, such absurdities and immoralities were then known or probably already practised?

Mr. Laing accounts for their beliefs as far as such a word is applicable, by the fact that to the savage mind the great objects and events in Nature, being common to all peoples and localities, would naturally suggest similar ideas to minds similarly constituted. But other reasons have been suggested, especially this, that there must have been some occasional, perhaps accidental, communication between peoples, even the most distant. Such communications may have arisen sometimes with more enlightened, or it may be with more "savage" races than themselves, while the fact that all originally were of one race, infers that each had once at least communicated with

at least one other community. Perhaps this view is farther strengthened by the fact mentioned by Mr. Laing, viz., that "Another feature of savage cosmogonies, illustrated especially in some early Slavonic myths, in Australian legends, and in the faith of the American races, was the creation of the world, or the recovery of a drowned world, by animals, as the raven, the dove, and the coyote." *

Mr. Taylor observes: "So far as history is to be our criterion, progression is primary and degradation secondary; Culture must be *gained* before it can be lost." Perhaps it would be equally correct to say that Civilization must be *possessed* before it can be lost, for Mr. Taylor's words seem to *assume* that Man was originally a savage—*as to which we have no knowledge whatever.* Fontenelle *assumes* that, with the exception of the Israelites, "all nations made the astounding part of their myths while they were savages, and retained them from custom and religious conservatism."

In connection with this subject, Dr. Reville, a very distinguished Professor of the Collége de France, Paris, writes: "Unfortunately we find ourselves face to face with a theological doctrine, which we must discuss. It is the hypothesis of a primitive revelation. . . . Our history is met at the outset by the claim of those who will have it that in the very beginning of the human race the creative power revealed to the first men, by supernatural means, the essential principles of religious truth. If this claim be well founded, our history, for a very long time at

* "Myth, Ritual, and Religion," vol. i. p. 288.

least, can be nothing more than an exposition of the degradations and corruptions of this revealed truth." In combating this "claim," Dr. Reville takes up, we think, a singularly illogical position. He says: "Here we have, *in the first instance*, Man, as yet in *all points like an animal, incapable of speech or thought.*" [Indeed! But where is the proof of this? And at what period was Man found not speaking and thinking?] "Some time after this Man is found speaking and thinking. . . . Have we, therefore, the right to conclude that a supernatural intervention has taken place?" * This difficulty seems one entirely of the learned Doctor's own suggestion. There appears no need for any *additional supernatural* intervention whatever. *If the primeval* MAN *was created at all*, he was obviously created, not a mere animal or a savage, but a MAN—and, if a Man, of course *a complete one*. But, whether *created* as a savage or as a perfect Man, it evidently *must* alike have been by "supernatural" intervention, for a Creation is necessarily supernatural.

Here an apparent contradiction may appear to any one not a believer in this "Primitive Revelation" of Creation according to Genesis, but in that by Evolution according to Dr. Darwin. There need be no confusion here, for obviously Creation *must* precede Evolution. Instead, however, of treating the former contemptuously, or ignoring it altogether, as is somewhat common, he devotes Chapter III. of his important work to its consideration. Not only does he state his opponents' case with fairness, but he clearly

* "The History of Religions," translated by A. H. Sayce, chap. iii. (London, 1884).

specifies his own objections to it, as partly given above. They may be summed up in this sentence, "We might reply to this theory by the plea in bar with which Science is always justified in opposing views which rest on an appeal to the supernatural."

To assume that Man was not created but evolved only leads back to the next question, "Who created the previously existing creature from which he was evolved?" *To get quit of the Supernatural is simply impossible.* Science is not related to the Supernatural, nor is the Supernatural dependent on science: they are not necessarily opposed to each other, but are simply incommensurate. Dr. Reville should logically prove, in the first place, that his plea in bar is philosophically true, instead of merely assuming it. If we suppose that Man was not created as Man, but evolved, the difficulty is not removed, because the creature or monad from which he was Evolved must still have been originally *created*—and Creation can only be the act of some Supernatural Power. This style of argument, or rather this closing of all argument, seems unworthy of so liberal a thinker.

Believing as this eloquent writer does in a *first* beginning of Man, does it seem *more supernatural* that it was by Creation of Man than would be the *original* Creation of an *animal* germ or a *savage*—all three acts must, we repeat, be *alike supernatural in the first instance*, and must have existed before Evolution could begin.

"How," he asks, "could the Divine power have communicated ideas to men as yet incapable of speech or thought?" Why incapable? Was it not

equally supernatural to create man without, as with speech? Indeed, *if without Speech, then necessarily without Reason, as we have already seen*, and therefore *not a Man*. He adds, "We will simply open the Book of Genesis and see if it contain all that they make it say. . . . The first narrative relates the beginning of the heavens and the earth under that simple, majestic, we might say classic form, too often spoiled by the efforts which have been made to found upon it modern cosmology and geology. It contains scientific errors on which we need to pause. . . . It speaks of the heaven, the firmament, as a solid vault, above which the waters are stored; of the creation of the stars after the formation of the earth, and solely for its use; of the appearance of the entire vegetable kingdom before it could be subjected to the action of solar light. . . . Then when animals of all kinds have been created in their turn, God said, 'Let us make Man in our image and after our likeness, and let him have dominion' over all animals. . . . Then the Creator, having finished His six days' work, rests. Absolutely nothing indicates the revelation of any religion or Morals to the first human beings." *

Here the reader will remark that the above idea is a pure assumption. It seems most improbable that the Great Creator would create an imperfect Man in any respect, whether physically or intellectually. He could not have been either an ignorant savage, an immature baby, or a fool, but a *Man* proper, with the highest intellectual faculties. His knowledge of everything around, from the trees and flowers to the

* "History of Religions," pp. 42, 43.

heavenly bodies, as far as visible, must have been full and complete, so far as he required or wished to know, and his taste and enjoyment of them all perfect. He would not be possessed of a written language, nor of tools, nor of a telescope, nor of scientific formulæ, but was necessarily endowed with the capacity of inventing and constructing *all of them* as he discovered their need. Till then they would have been useless to him. In short, he was "a MAN" in every respect. Men of greater genius even than James Watt existed before his day, but till then the Steam Engine was probably not a necessity of the world's civilization. In primeval Man the germs of all inventive genius existed, and have been, and will be in all future time evoked to meet the needs of Civilization as they arise, to the utmost bounds of the possibilities of Nature. Indeed it is possible that great inventions of primitive genius may have existed and been subsequently lost in the not improbable subsequent degeneration of Mankind.

As to the Scientific errors, some seem to assume that the creation of the elements of Nature was part of the work of the First Day, whereas it is expressly stated that this was done "*In the Beginning*," a period apparently indefinitely long anterior thereto. Here we may see that although the opening verse of Genesis does not say so in as many words, it clearly indicates that Matter is not eternal. The "First Day" rather seems to begin with the third verse, *for till then the measurement of Time did not begin.* Allowing for the extreme conciseness of the Genesis account of Creation, there seems to be no very clear

contradiction of Science. As to the "Firmament" being a solid vault, this word simply means in the original *Expansion* or *Inflation*. There seems to be nothing incredible in believing that a great store of water or its elements might float in the upper atmosphere, or as clouds appear to do (according to the teaching of Astronomy), in the outer atmosphere of the Sun.

Somewhat related to this subject is the question of the credibility of a general Flood, which has given rise to much discussion. The opponents of the theory suggest its incredibility when scientifically considered, and this is the only point which we need examine logically. If this globe was once a mass of molten or plastic matter, in course of cooling down, it is not inconceivable that a great mass of water and steam may have accumulated under its outer crust. Now, should an eruption of its plastic interior have occurred, such as the late Mr. Proctor and other scientists deemed probable, and even Mr. Huxley considered possible, these accumulated stores of water and steam would perhaps by an eruption be forcibly ejected into the air. If so, such a phenomenon would necessarily disturb and greatly affect the atmosphere—indeed probably discharge the entire liquid mass stored in its clouds. A flood, such as a catastrophe of this kind would occasion, might possibly be so great as to become memorable in all time. There are numerous instances of the eruption of large quantities of water from volcanoes. At the eruption of Vesuvius volumes of steam sent up by the volcano descended in torrents of water. Mount Ararat is an extinct volcano, and possibly may

then have been similarly deluged, and on a larger scale.*

We have no definite knowledge of the amount of vapour and water which the Earth's atmosphere could hold in suspense. But that it is enormous is shown by the fact that 24 inches of uniform rainfall has occurred in 36 hours in Bombay, and more recently even a greater fall. Another case is recorded of a rainfall in Assam of 150 inches in five successive days, which is almost incredible; and in September of 1889 we read of a flood of rain in Japan even more disastrous. Nor can we assume that these extreme cases are the atmosphere's *maximum* power or capacity of carrying water. But we have seen that in prehistoric times much greater floods of rain fell than now † in Eastern countries and India. It has been estimated that the annual rainfall amounts to four feet *over all.*

Under all these considerations it certainly does not appear that we can logically deny the *possibility* that a general Flood has occurred. Its probability is quite another matter, certainly. We do not read in Genesis that the stars were created after, but rather with the Moon. The marginal reading is probably the more correct—"the lesser light to rule the night, with the stars also." They were set to give light upon the earth, but it is not said they were *solely* for the use of the Earth. As to the appearance of the entire Vegetable kingdom before the Creation of the Sun's rays, this appears to be explained in

* "Graven on the Rock," by Dr. Samuel Kinns (Cassell and Co., London, 1891).

† Medlicott's "Geology of India," p. 417.

Chapter II. "But there went up a mist from the earth and watered the whole face of the ground," evidently indicating heat and growth. Light was previously created, and was probably magnetic or electric. In the Hebrew, the word for sun-light is quite different from the original "Light," and might properly be translated "luminary" or "light-holder."

As to Man's creation, there is a decided change of language from that hitherto used in the opening of Genesis. His form is *made* of the dust of the ground, and then God breathed into his nostrils the breath of Life. Here there is no idea of either Evolution or growth. To use the words of a recent writer, "this Life mediates between the dust and divinity which are in us." Man is obviously made complete, as already stated, and if so, undoubtedly as perfect a MAN as ever lived, both in body and Mind. As to the revelation of any religious ideas nothing is said, but as God blessed Man and declared him, as everything he had made, "very good," it is scarcely conceivable that he was *ignorant* or void of any useful knowledge whatever which the human Mind needed or could attain to. Accordingly he is made the earthly lord of all. Besides we read that God conversed with Adam in the garden. To say, as Dr. Reville does, that he was *ignorant* because in a state of complete innocence, is certainly unwarranted. Are all beings, even Angels, ignorant unless they sin, and consequently "know good and evil"? To be ignorant of Evil is the highest Good, and to know Good is the highest state of Wisdom and Knowledge. Ignorance is symbolized by Darkness, Knowledge by Light.

Several recent writers say that this history of Creation is not a scientific account of Creation *generally*, but only that of the Earth and Man. All that is said of the other heavenly bodies is only in relation to their service to Man. This consideration, if allowed, may in some degree account for the creation of the Earth being mentioned before that of any of the heavenly bodies.

"Certain theological gentlemen and philosophers have," said Matthew Claudius, "raised up a host of objections and solutions," in relation to the unscientific account of the days of Creation. Cuvier, than whom a higher authority cannot be quoted on the subject, wrote thus: "Brought up in all the wisdom of the Egyptians, but in advance of his age, Moses has left us a cosmogony of which the accuracy verifies itself every day in a marvellous manner. Recent geological researches are in perfect agreement with the Book of Genesis as to the order in which organized beings are successively created." * No doubt different views of this are sometimes expressed by men of great eminence, but not of greater than Cuvier. This is not a scientific treatise of creation, but, as Dr. Newman Smyth has said, "the alphabet of Science is here; and it is correct."

But the main cause of difference in opinion here lies in the belief or disbelief of the opening chapter of "Genesis." Disbelief, however, in its history in no way removes the crucial question of Creation or Evolution. By adopting disbelief nothing is gained to get quit of the former; for, to repeat what we have already said, if we relegate the first Creation

* "Discours sur les révolutions du globe."

backward to any additional millions of ages, *it still faces us. Evolution, as already stated, cannot begin without a previous Creation to evolve from,* and the only escape is the adoption of the theory that the world, or Matter, is Eternal. This is to all men unthinkable, or, if entertained, it at once condemns the *possibility* of Evolution, for the two ideas are mutually destructive of each other. Logic sternly assures us that if Matter is eternal, the very idea of Evolution is *necessarily* extinguished.

The Scholastic reader will see that our standpoint in these critical remarks on Genesis are entirely different from those of the high class criticisms, both theological and scientific now so prevalent. We are aware of their merits, but they are so very voluminous and profound that no adequate quotations are here possible.

NINETEENTH LECTURE.

ORIGINAL CREATION—GENESIS AND THE VEDAS—CATACLYSMS —FOSSIL MAN—SANSCRIT WRITINGS—ANTIQUITY OF JOB— RETROGRESSION—RELIGIOUS DECLINE.

TO us the question of the era of Man's appearance upon the earth is one of the greatest interest, and has an important bearing upon the Evolution theory. Mr. S. Laing* says that this era must have been immensely more remote than the Anti-evolutionists allow; and he indicates that they support the much more recent date because it seems to favour the Evolution theory less than the most remote period does. This era is variously supposed to have been during the Quaternary Age, the Tertiary Age, the Glacial Period, or other indefinably remote period—or, to use Shakespeare's words,

"In the dark backward and abysm of Time," †

so remote that scarcely any two savants can agree as to the probable era. In point of fact, there really seems to be no trustworthy evidence on the subject. Whether we may place any of these epochs back to 10,000, or 20,000, or 200,000 years, it matters little —for all such guesses are indefinite and valueless—

* "Problems of the Future," by S. Laing (Chapman and Hall, 1889).
† "The Tempest," act i. sc. 2.

useful, indeed, as counters are in a game, or as x is in an unsolved Algebraic problem.

Let us look into the possible indications of this era. The only hints obtainable seem to be those given by the oldest Fossils of Man, or the evidence of his existence which the work of his hands have left us, the oldest footprints he has made upon the sands of Time. Amongst these are the Stones and Flints, shaped for arrow-heads or cutting tools, and certain rude carvings found on cave bones, the age of which cannot be estimated unless the strata or soils in which they are found embedded give some indication of dates. Many of these flints are said to bear some resemblance to pointed flakes of artificial origin, but possibly may all have been produced by percussion or pressure.* Those covered by Stalactite we must exclude for reasons elsewhere given. The Flints are widely distributed in great numbers, and if artificial, indicating, we think, a then correspondingly large and extended population.

Here a question again arises which we have already considered in a previous Lecture. Has there been since then any change by the shrinking of the Earth in cooling down, or any great upturning of its surface by Volcanic eruption, or by Floods, or chemical explosions from intense internal heat, or by Earthquakes, or any Cataclysm such as might have destroyed or disturbed or changed the then arrangement of the earth's strata? Or, on the other hand, is it clear that everything mundane has remained unaltered for all these epochs, and that no

* "Man and the Glacial Period," p. 868, by Professor G. F. Wright (London, Kegan Paul and Co., 1892).

change has occurred other than those we see being effected by Time and the ordinary forces of Nature around? Can any one say so in view of the great eruptions at Java, New Zealand, and others not yet forgotten? Who is to decide between these opposite theories?

Some authorities adopt the latter view, which, however, cannot be said to be generally accepted. Mr. O. Fisher's opinion seems to be different. He writes that "much of the water on the surface of the globe was originally secluded in the molten interior, and has been emitted by volcanic action in the course of ages." * The question is much discussed at present. The Paris Academy of Science offered, amongst other prizes for 1890, one for "Researches on the *agencies that have caused the foldings in the terrestrial crust—the part played by horizontal displacements.*" Professor Heilprin, writing of Bermuda, shows that "these islands have undergone *recent movements, part of upheaval*, and *part of subsidence.*"

If Geology does not clearly decide the question as against the claims of the Uniformity theory, to some extent Astronomy seems to do so. In Siberia and in extreme northern lands of Europe, abundant proofs have been found that, at some prehistoric age not very remote, these countries were inhabited by Mammals of great size, such as the Elephant and large ruminants, thus indicating a rich vegetation and a warm or very temperate climate, entirely different from that possessed by them in all historic time. Such a change could only have been produced

* *Nature*, January 2, 1890.

by some potent force which is not now existent, so far as Science can teach us. We know of none amongst the slight variations of the earth's movements which could alter the present Angle of the Earth's axis as it lies to the plane of the Earth's orbit. This angle, which is about 23°, is *fixed* by that apparently essential property of Matter—Inertia, and only an increase or diminution of the angle would correspondingly alter the temperature of our northern lands. Those curious in such matters should refer to Professor Perry's book.*

Mr. Laing acknowledges that this Angle of Inclination is a mystery. Of course the mystery is not in the fact that such axial-inclination exists, but in the apparent absence of any force which could have caused it originally, or which could have subsequently altered it. As such alteration, however, is extremely improbable, it seems impossible to account for great changes of climate, unless by the supposition that they have been effected by some other Astronomical cause or some kind of Cataclysm now unknown.†

What is the oldest Fossil skull and skeleton of Man is doubtful, but assumed as dating back to the Quaternary Age, and is known as the Corstadt type. The next oldest is supposed to be the Cro-Magnon. "Now," to quote Mr. Laing, "this type is not a degraded one, but physically that of a fine Man—tall, with large and symmetrical brain." Such investigations have an important bearing upon the question of the Epoch of Man. If

* "Spinning Tops," by Professor J. Perry (London, 1890).

† "The Cause of an Ice Age," by Sir R. Ball (Kegan Paul & Co., 1891).

the Tertiary skull discovered at Olmo, near Arezzo, with which, however, distinctly Neolithic implements were associated, the skeleton found at Castelnedolo, and the fossil Man of Denise, in the Auvergne, are reliable evidences, they carry us back to a great antiquity.*

Mr. Laing says the Calaveras skull seems to have still better claims to a high antiquity. It is said to have been found at a depth of 153 feet in the auriferous gravel of California, containing remains of mastodons, and covered by five or six beds of lava. But here again doubts enter into the case, as well-fashioned mortars, stone hatchets, and even pottery, are said to occur in the same deposits.† "Everything about these remains," says Mr. Laing, "is entirely human. We are still, therefore, without evidence of human evolution from fossils, and the negative evidence remains that while so many Pliocene and Miocene formations have been explored, and so many [so called] missing links of other animal forms discovered, no such links have yet been found in the case of the human species. . . . It is only when we come to the higher intellect and moral faculties that the wide gulf appears between man and the animal creation which is so difficult to bridge over." Mere opinions and theories and expectations of future discovery of missing links are plentiful, but to all such inquiries echo answers "Where?" "And yet," as Dr. Huxley emphatically asserts, "there is *a wide gap between Man and the highest Ape* which has never been bridged over, and

* See "Origin of the Aryans," pp. 105, 106.

† Opening Address by Dr. Evans, British Association, 1890.

which precludes the idea of direct lineal descent, although" he says, "it implies relationship." The relationship, we presume, consists only in their being the *workmanship* of a common Creator, of the same type and physically of the same material, at least so far as has yet been proved.

There can be no doubt that much disappointment has been felt at the evidence, or rather want of evidence, which the few Fossil remains of Man yet found have given in favour of Evolution. Mr. Laing says, "And yet it is just here where we might expect to find conclusive evidence, but it has hitherto failed us. . . . We find no Fossil remains which stand to modern Man in something of the same relation as the Hipparion does to the Horse." Nor can any such be expected, because our *Test* points out that in the latter both factors are in one sphere, while in the other they are not so: for *Mind* is the Man.

It must be admitted that, whatever side we adopt in this great question, difficulties still exist. The Genesis story seems at least preferable to that of the Veda writings, upon which probably too many theories are based. It is much less inconsistent with itself—is more definite and clear. Its precepts indicate a nobler and more natural life, and it is less disfigured with absurd puerilities, personal boasting, and self-glorification, innumerable gods, and cruel immoralities. Not that the Hebrew people were free of cruelties and immoralities; but these were apparently unconstitutional, and contrary to the teachings, or at least to the spirit, of their Moral Law, while their whole polity sternly con-

demned idolatry and human sacrifices. Perhaps these very points of superiority are so obvious that they tend to suggest the doubts which some yet entertain as to the authenticity of the Book. It has certainly been subjected to thorough criticism by many writers of the highest talent; but still, at least regarded as a whole, it well maintains its position. Into the merits of this criticism we cannot of course enter.

One of the difficulties which occur to the honest inquirer is this. If all peoples have probably emerged from a state of barbarism, before and beyond which history entirely fails us, what are we to say of "highly enlightened primeval Men"? The Genesis history gives us the least unreasonable suggestion we have, pointing to an original state of perfection with a subsequent deterioration of Men, through Adam's disobedience, and in the rebellion of Cain. Sanscrit accounts of this deterioration seem too absurd for belief. Cain's race appears to have obtained supremacy, and this possibly, no doubt, in the course of a few centuries more or less, might have resulted in a general degradation of mankind, with the possible exception of a small community less thoroughly so.

But, as Dr. Reville points out, such curious rehabilitations of prehistoric times are in this argument not allowable. It is, however, obvious that since we have no remains whatever either of Man or his works extending back to primeval times, or even approaching them by unknown centuries, no evidence can be formed to prove either side of the question. Thus there seems only one course open

to thinking men, namely, that we should not quarrel over the absolutely unknown, but keep (not contemptuously) both "Genesis" and the Veda writings as they are, and search and wait for new light from any quarter.

But, in the meantime, we can compare them by the *internal* evidence of their respective contents. The Veda writings are extensive, and consist of several works of different, but all of unknown, dates. The word Veda signifies Knowledge, and such writings are frequently metrical but otherwise in prose. Sometimes they address the deity, or deities, in adoration or thanksgiving; at other times, and more generally, they direct, and narrate, and petition. They give directions as to Sacrifice, recount mystical legends, and sometimes treat of speculative doctrines. The meaning of the word "deity," however, is by no means clear, for some hymns deify things, such as the sacrificial post or the war chariots, and these are invoked as *devatâ*.

The earliest of these Vedas, or what is left of them, are by some claimed as the oldest writings we possess; however, the hymns appear to have been subsequently transposed and garbled in such a manner that it is not surprising if much of the original beauty of the Veda poetry is lost. The allusions made in them sometimes evince an advanced state of civilization, not of merely Nomadic, but of City life, great kings, and vast riches. They indicate a knowledge of Astronomy, Medicine, Metallurgy, and Music, and not less of the chief vices of our modern society. Caste is not known, which shows a prehistoric antiquity. The first

hymns are addressed to *Agni*, the next to *Indra*, that is, the Sun and the elements of Nature; after these to the deities collectively. The authorship of the hymns is various. It is difficult to give a specimen of these writings; they are so extremely disconnected and vague,—occasionally philosophical, but often ridiculous. Here is a condensed indication of their style:—"Once upon a time Cattle did not stand still to be taken by the gods for food. Turning to the gods they said, 'You shall not obtain us. No, no!' . . . They frightened the animals, which then returned to them. That is the reason that up to this day the sacrificial animals are turned towards the *Yûpa* (their head being bent towards the sacrificial post to which they are tied). Then they stood still to be taken by the gods for their food. [Here there is a suggestion of either fraud or self-deception.] . . . The man who is initiated (into the sacrificial mysteries) offers himself to all deities. Agni represents all deities, and Soma represents all deities. When the sacrificer offers the animal to Agni and Soma he releases himself from being offered to all deities"; and so on in varying legends, often equally unintelligible, superstitious, and indefinite.

The Veda writings are held to be Divine communications, "and therefore beyond the reach of doubt." They claim to have existed from eternity, yet it is self-evident that they have been the gradual product of a long period of time. The intermixing of different portions may have destroyed their continuity, and in this way confused the purpose and meaning which otherwise they may have possessed.

It seems to be suggested by some recent writers

of eminence that these writings are older than those of the old Biblical historians and Hebrew prophets, and that the remarkable resemblance of several historical legends or facts and ceremonies related in both, indicates that the latter had been copied from the Veda writings and other Sanscrit literature. But it is *equally* obvious that possibly the copying may have been made by the authors of these Veda writings, so that we can judge only by comparing their relative probabilities.

As an eminent speaker some time ago said at Manchester, "the difference between phenomenal and supernatural religion is one upon which no compromise is possible. It admits of no gradations—it is true or it is false." But as both Hebrew and Sanscrit writers assume the existence of the supernatural, we have here no element of distinction between the rival authorities. These Sanscrit manuscripts are very numerous. The Indian Government have purchased 2,400 of them, and give an annual grant for the publication of the Sanscrit texts of ancient Persian and Indian writings.

The Hebrews were for generations in bondage, yet survived and maintained solidarity, and some independence as a nation, until well within historic time; and even yet they remain to some extent a separate people, though without a country. Their Manuscripts, jealously guarded as they may have been, must have been re-copied several times, but are not more questionable now than those of any other people. More than this need not be said. The Egyptian Hieroglyphics and Papyrus writings we have already considered. Those preserved upon

Obelisks and other buildings are perhaps the oldest and most valuable, but are naturally very condensed; while those on Tombs are more personal than national, and there is, at least in the former, no certainty that the writings generally are really as old as the granite ruins.

The authenticity of the Bricks and Tablets of Chaldea has seldom been questioned. Whether they are equally old or not is quite uncertain; but, in consequence of their broken condition, the impossibility of rendering the meaning of the writers intelligible deprives them of their otherwise great importance, both in a historical and in a mythical or religious point of view. Here are, as a specimen, a few lines from an old text:—

"A prayer to Assur, the King of the gods, ruler over heaven and earth—the father who has created the gods, the supreme first-born (of heaven and earth), the giver of the sceptre and the throne. (To) Nin-lil, the wife of Assur the begetter, the creatress of heaven and earth. (To) Sin, the lord of command. (To) the Sun-god, the great judge of the gods, who causes the lightning to issue forth. (To) Anu, the lord and prince. . . . (To) Rimmon, the minister of heaven and earth, the lord of the wind and the lightning of heaven. (To) Istar, the queen of heaven and the stars. (To) Merodach, the prince of the gods. (To) Adar, the son of Mul-lil, the giant, the first-born. (To) Nebo, the messenger of Assur. . . . (To) Nergol, the lord of Might. (To) the god who marches in front —the first-born. . . . (To) the seven gods, the warrior deities, . . . the great lords of heaven and earth." *

* Hibbert Lectures, 1887, p. 122.

And so on in other Hymns, from which the list of gods might be multiplied almost indefinitely.

The writings of Moses describe the creation of our Earth and of organic Matter and Man; and the story as we have already seen, whether true or not, is succinctly told, and cannot be shown to be scientifically impossible. The Veda writings, and Assyrian Tablets having reference to these matters, are generally the reverse, and rendered more unintelligible by the continual introduction of numberless gods.

When we refer to the Book of Job, an important light is thrown upon this question of the religion of the ancients. Sun-worship was prevalent in his time, but Job appears as a worshipper of the true God. His extreme antiquity may be inferred from the fact that the terms of his reference to Sun-worship indicates a highly refined semi-spiritual adoration, entirely different from the sense of any subsequent references to it. At a later time it appears to have become polytheistic, and subsequently to have been corrupted into Fire-worship.

"It was inevitable," says Mr. John Morley, "that the first problem to press on men with resistless urgency should be the ancient question of the method of the Creator's temporal government. What is the law of the distribution of good and evil fortune? . . . This tremendous question has never been presented with such sublimity of expression, such noble simplicity and force of thought as in the majestic and touching legend of Job." * Tennyson called it the greatest of Poems; Luther held it as the most magnificent and sublime.

* "Critical Miscellanies," vol. ii. p. 292 (Macmillan, 1886).

Could the era of Job be ascertained, it would throw much light upon the question of Ancient Civilization. But its date is embedded in endless traditions and contradictory modern criticism of no authority. It is popularly placed late, perhaps just because the high culture and learning it reveals are [*erroneously*] supposed to be incompatible with an era prior to that of Moses. *But, for that very reason*, we venture to believe in its extreme antiquity. The theory that man was originally a savage and slowly and gradually advanced toward civilization, gave rise to the popular idea that in prehistoric times men were consequently ignorant. But in view of so much incidental evidence to the contrary, this idea cannot be longer entertained. Professor A. H. Sayce has said that "the chief argument against the credibility of Chedorlaomer's campaign was the difficulty of believing that military expeditions could have been sent from Babylonia to Palestine at so early a period as that assigned to Abraham." "The cunieform inscriptions," he adds, "show that the critic, and not Genesis, has been at fault." . . . "It is clear that there were books and archives, readers and writers, in Jerusalem before the time of the Exodus"—it may be long before. Instead of a progressive advancement, as generally assumed, may there not have been successive periods of great retrogradation of civilization in the world's history? That an era of retrogradation followed the era of Job is quite possible. Whether we regard the book as true or legendary makes little difference to our argument here, so far as its subject matter is concerned.

Theologians frequently urge that the Hebrew

Scriptures may not be scientifically accurate, because their aim and purpose was to teach Religion, and not Science. This argument is somewhat lame; besides, it does not hold good, for the opening chapters of Genesis, combined with Nature's teachings, are the foundations of material science of the highest importance. In the same sense there is almost no modern Science which this Book of Job does not directly or indirectly show to have been then both familiarly and fundamentally known. Of these we may mention Astronomy (in which he propounds no erroneous theory), Natural History, Pneumatics, Agriculture, Mining, and Metallurgy, Geology, Writing and Literature. The first mention of the word *Book* is by Job: "Oh that mine adversary had written a book," not a mere manuscript or tablet, but suggesting a comprehensive treatise. A biographer of Galileo claims as amongst his greatest discoveries "that Air has weight," but Job speaks of the "*weight of the Wind*," not as a discovery of his, but as a fact then obviously well known. This fact of "Atmospheric Pressure" is one of the highest scientific importance, but it evidently had been lost in subsequent "dark ages," until it was rediscovered, probably nearly 4,000 years later, by Galileo and others.

Another circumstance may be mentioned which greatly strengthens the claims of a high antiquity. No reference is made by Job to any Peoples or Nations except the Chaldeans, the Ethiopians, and the Sabeans. The latter was long supposed to be a mere tribe of Nomad Arabs, but was recently ascertained to have been a very ancient nation, whose capital was in South Arabia, between which and

Syria an active commercial intercourse was from a very early period carried on by land as well as by sea. Throughout this great extent of territory, alphabetic writing was familiarly known and practised. These three—partially excepting Egypt—were, so far as we know, the only Eastern nationalities existing in or about the twentieth century B.C. It therefore seems probable that none of the great nationalities of Babylon, Egypt, Assyria, Phœnicia, Media or Persia, and Greece, had become settled or predominant powers until after the era of Job. It is remarkable that Josephus, the elaborate historian of the Jews, seems to make no reference to Job whatever. It is evident that he was not a Jew or Hebrew —a word unknown in the days of Job.

The circumstance that Job makes no mention of any of these nations, nor any reference to their religions or gods or idols or Human Sacrifices, nor indeed to any religion but his own (evidently a primitive natural and spiritual worship of the Great Creator, and a belief in Immortality,) is remarkable. The era of Job must, we think, be relegated back to a period preceding the era of Abram (about 2000 B.C.), thus indicating that if the Book was written in Job's own day it is the oldest writing in the world, not even excepting those of Moses, about 1500 B.C., and the oldest Vedas, supposed about the same. "The oldest monument of Indian speech," says Professor Max Müller,* "is the Veda. It is curious that wherever we have sacred books they represent to us the oldest language in the country."

M. Renan refers to Job as a mere Bedouin or

* "Natural Religion," p. 295 (Longmans, 1889).

Nomad Chief, and says that the book was composed by an Israelite. To any careful reader these two statements must appear incredible; even the style of the book contradicts the idea. Job was "the greatest of all the men of the East." His sons each lived in his own house—not tent. Job offered up burnt-offerings for his "very great household," being a kind of priest as well as a king, evidently long prior to the Levitical worship. Job knew of one Supreme God, and of the sin of idolatry in Sun-worship; but from the entire absence of reference to any Jewish rites, or even to the Patriarchal religion of Abraham, we think the claim of extreme antiquity made for Job is probably well founded. His treatment of his men-servants and maidens * indicates a far higher condition of civilization than that recorded of *any* subsequent Eastern government—higher even than our own modern refinement!

Opinions vary greatly as to the era of Job. It has been suggested on the one hand that he was "a descendant of Esau," whilst another writer makes him "prior to Abram." This seems probable from the tradition that Job died at the age of 240 years—an age not known to have been attained by any one *after* that era. Joseph lived 110 years. Jacob died at 147, Isaac at 180, Abraham at 175 years, while his father, Terah, lived for 205 years. But some modern authorities think the Book of Job is only pre-Maccabean, which seems most improbable, for the reason we have already given.

The countries named in the book are not familiar to us; the country of Bildad the Shuhite and Zophar

* Job xxxi.

the Naamathite are quite unknown. There are no references to the Hebrews, or any other *nation;* although the language of the book is Hebrew, it is saturated with Arabic, and its style is unique. The Chaldeans are spoken of as robbers and cattle stealers, not as a people of national importance, as they subsequently became. Job's oxen were plowing—mention is made of the furrows of his fields, and his crops were wheat and barley. It is scarcely credible that Job, who was a pure Monotheist, and refers to a refined type of Sun-worship, could have lived after the era of Moses without making some allusion to the numerous false religions of that later age, such as he does to the productions of Egypt. This is the more improbable, considering the wide field and very voluminous nature of the discussions of Job and his several friends, evidently philosophers or men of learning and importance.

Now we have seen glimpses of high civilization and Art existing long anterior to Solomon's era, with advanced knowledge of Geometry and Science, especially Astronomy. All these seem to have been familiar to Job, conjoined with a philosophy highly moral and religious, different from, but in many respects not inferior to, that of Solomon. The culture and learning of his age are indicated by the frequent mention of such terms as the Bear, the Pleiades, the bands of Orion, and the signs of the Zodiac. Then the incidental mention of the Gold of Ophir, the Topaz of Ethiopia, Sapphires, the Onyx, Jewels of fine Gold, Coral, Rubies, Pearls, Crystal, all collectively show the great refinement and learning of his era. The advanced knowledge then

possessed of Arts and Sciences is proved by works apparently worthy of our own age—the Refining of Gold, the Mine for Silver, Iron taken out of the earth, Brass molten out of the Stone. There is nothing incredible in this knowledge of mining and Metallurgy at a period far anterior to the era of Solomon. We are told in Genesis that most of these arts were known to the early descendants of Cain.

Job seems to have lived in a kind of happy valley, secluded from surrounding tribes, and in an age of the world's history refined and intellectual. May it not even have been anterior to the prevalence of any Idolatrous religion other than a pure Sun-worship, and as we have said, prior to the writings of Moses and to the era of the Veda writings of India? Subsequently retrogression may have set in, but human culture was destined to again advance up to the enlightened reign of the great Solomon. That there is nothing unreasonable in this supposition is shown by the fact that, following Solomon's age, such another retrogression again became general until the days of the famous Poets and Philosophers of Greece. From these days till now History tells us of several more cases of retrogression, as well as of eras of intermittent improvement and progression in the world's condition.

The Hebrew Prophets date more recently, but their writings do not resemble in style either those of Job or Solomon or the Sanscrit documents, which in some degree resemble each other. Dr. James Martineau writes: "The acuteness of Athenian

intellect has left us no account of any law of Nature which the greatest masters of ancient knowledge deciphered as we do now; but the strains of Job and the rapt song of Isaiah will never be worn out while a human soul is on earth, and a divine heaven above it." No doubt the Veda writings may indicate a people of ethically moral character and religious life generally, but curiously *inconsistent* and difficult to understand. While their literature sometimes shows refinement and occasionally poetic beauty, it is *largely* mixed up with what appear to us childish peurilities. Their religion and many sacrifices and prayers seem not so much worship and adoration of the gods as an anxious effort to obtain their own personal protection, and bespeak special benefits and favours for themselves.

No doubt much larger allowance should be made not only for literal mistranslation of words, but also for *misconception of their meaning*, than is generally done.* Difficulties of such kind seem to meet the translators of the Hebrew writings, and especially of Genesis and Job.

Although Buddhism largely superseded Hinduism, the latter yet retains its worship in India and the East. Mr. Ross, who resided some time in the Land of the Five Rivers, thus writes: "There is at Multan in the Punjab the ruins of a Hindu temple known as Prahludpuri, of great antiquity, and mentioned in the Vedas. The Hindu tradition is that a giant named Hurnakus once ruled the kingdom. . . . The temple having been the scene of his supposed *incarnation* is

* "The Life of Hiuen-Tsiang," by Samuel Beal, B.A., D.C.L., Professor of Chinese, London, pp. x and 88 (Trübner, 1888).

held in the highest veneration by the followers of Vishnu, who is locally worshipped." *

One other point of comparison remains to be considered between the Hebrews and the other ancient nations—that is, the question of human sacrifices. The sacrifice of the first-born son appears to have been regarded by sundry ancient nations as an acceptable offering to their respective national gods, and such sacrifices seem to have been known to the writer of the Vedas; † but *from the first*, the Hebrews, whether as a nomad tribe or subsequently as a nation, seem to have condemned this rite with abhorrence, and any apparent exceptions were in defiant opposition to all their constitutional Laws. The case of Isaac seems no real exception: nor does Job make any reference to such sacrifices. There is, we have seen, no evidence of Job's being a Hebrew, nor either of his Friends. Probably he was an Arabian; and it is possible the "Book" may not have been *written* till after his time—a faithful compilation of ancient manuscripts or legends. But it is evident that writing was well known in the most ancient eras of which we can obtain glimpses, and such seems to have been Pliny's opinion. In Egypt, when the written language was Hieroglyphic, this was largely intermixed with Phonetic words. Even in very ancient times writing on papyrus was common. This Book of Job gives evidence of an altogether unique state of Learning of the highest class, Cosmical and Psychological. Is there any ancient writing to be

* "Land of the Five Rivers," p. 99, by David Ross, F.R.G.S. (Chapman and Hall, 1883).

† The *Academy*, October 22, 1892, p. 364.

compared with it, either in style or in its enlightened morals, and in the profound nature of its philosophy? To us now, it presents a singular resemblance to our best modern writings, both in train of thought and in the high themes which it discusses. It is evidently greatly superior to any subsequent writings known to us up till the period of Solomon. But for such glimpses as we have already obtained of the refinement and Art of the most extreme antiquity, we could not fail to be greatly surprised by the culture and philosophy of Job and his friends.

The Egyptian slavery demoralized the Hebrews. This is only what slavery always accomplishes, and it took long centuries of discipline to recover the people from their debasement and hankering after Idolatry, which all their Laws forbade under the most dreadful penalties. It seems evident that the ever-recurring falling away to the sensuous idolatry of their neighbouring nations was an open rebellion by both king and people, an illegal act against their own national laws and institutions, which their Prophets denounced under the name of Adultery, with singular unanimity and vehemence. M. Renan says: "Egypt, far from having perfected the Israelitish religion, in my opinion altered it in many respects for the worse."

It is very obvious that nearly all the important physical events recorded in the Hebrew Scriptures, which have been handed down to us by the Jews in a less or more clear and succinct form, are to be found in and amongst the ancient records of almost every other Nationality. The language is different, the names are different, and the events themselves

curiously different; but, notwithstanding, nothing is more obvious than that they generally refer to one and the same historical event.

It has been suggested, as already stated, that the Jewish records have been copied from the others by collating, amending, and condensing them into a more intelligible continuous narrative—terse in style, and adapted to a more modern taste. By omitting most of the obvious errors, contradictions, and incredible stories of countless gods, these different and various records may have been made more acceptable to the intelligent reader. While this suggestion seems not impossible, there is no evidence whatever of its being a fact. Another party affirm that this is a reversal of the fact, and as an example they point out that the Babylonian account of Creation gives the creation of the Moon before the Sun, in the reverse order to that of Genesis, which declares the Sun the "greater light," and shows itself in this and other respects the more reliable history. Yet another party say that neither on one side or the other have events been recorded at all, but that they have been handed down in the separate Nationalities, each by its own traditions and legendary fragments and myths. Tradition soon became corrupted, ending in new Myths and Legends still more so, and by the time the facts became formally recorded, or written, they would naturally have grown extremely diverse from each other, and probably all diverse from the truth. This infers that there was no written literature known in the *earliest* ages, which, however, we believe to be a most unwarrantable assumption. But the difficulty does not end with the history being recorded. Each

recopying presents a new risk of farther corruption, either intentional or accidental. If it records the history of a people subsequently conquered, it very probably has been tampered with to flatter the pride of the conqueror, and more especially is it likely *to detract from those facts which would reveal the superior education or refinement* of the conquered race. Nor does this apply to Manuscripts only, but also to Monuments, Tablets, Cylinders, and Bricks, as well as to Legends and Myths.

For example, when the Assyrians conquered their neighbours the Babylonians, confessedly a more highly educated people than themselves, and then the great predominating power in the East, they, it is said, carried off their Libraries to that of Nineveh. This Library consequently contained not only Babylonian, but probably the learning of the still more learned and ancient nationalities formerly conquered by them, to wit, the Chaldeans, and the peoples even still more ancient whom the latter superseded. No doubt the Assyrians saved many of the older Bricks in establishing a Library anew, but it is not probable that all, or even the, *to us*, most valuable part, was retained. Unfortunately fire and time have destroyed very much of those which were retained. Other examples of similar frauds we have found in the inscriptions upon many of the Egyptian monuments.

Mr. Crozier says that a glance over the history of the world will discover to us that Religions differ from each other in the *Number* and in the *Character* of "the gods, as seen in the passage of religion through the successive stages of Animism, Fetishism, Polytheism, and Monotheism." We rather think,

from all the hints and indications which we have obtained of prehistoric times, that there had been, instead of a progressive Religion, an actual decline from an original Monotheism down to Animism. The course of Civilization itself, as we have seen, may be said to have followed the same degeneration. Mr. Crozier tries to show that the number and character of the gods depend on the law "that men construct their ideas of the cause of things in terms of their existing knowledge, culture, and habit of thought." * In this general law he includes the Hebrews. But he fails to note the fact that Abraham was, like Job, a Monotheist, and it cannot be said that the Hebrew people were from first to last more advanced in knowledge, culture, and habits of thought than the cultured Egyptians, Chaldeans, and wise men of the East generally, by whom they were surrounded. For some thousands of years all other nationalities seem to have been polytheistic, while the Constitutional Law of the Hebrews was uniformly and absolutely intolerant of Idolatry in every shape and form. This is a point of great importance in the world's history, which we cannot ignore.

"For the mass of Bible readers detailed analysis will always be too difficult. What every one can understand and ought to try to master is the broad historical aspect of the matter." † "The starting-point of the history of Israel was remarkable, not for its novelty, but for its normal character. In all ancient primitive peoples the relation in which God

* "Civilization and Progress," p. 240 (Longmans, 1888).

† Prof. Robertson Smith.

is conceived to stand to the circumstances of the nation—in other words, religion—furnishes a motive for law and morals: in the case of none did it become so with such purity and power as in that of the Israelites." *

The character of any given era is that of its best men. The best man of any era is its great poet. If we look down the dim vista of time we cannot with certainty recall the poet-author of Genesis. If Moses, he stands pre-eminent among poets: the writer of the opening verses and some other portions of the book must have been an inspired dramatist of a character altogether unique. The grandeur of the scenes and the divinity of its recorded Author renders its stage supremely sublime; the majesty of that first tribunal of Justice; the conviction of the three culprits, and their respective dooms, are recorded with poetic simplicity befitting the immense importance of the subject, and is dignified beyond all precedent.

If we omit Miriam and Balaam, the utterances of whom are highly poetical, we have no other poet of eminence till the days of David, the most musical of Kings, under whose reign and that of Solomon Civilization and science made a great advance.

Some four centuries later the Greek poet Homer lit up his era with two great poems, which have remained models of Epic poetry for all time. The Roman Virgil, and subsequently the Italian Dante, each represent the culture of their historic eras. Our own Shakespeare awakened his age, and has surprised and delighted all subsequent ones by his

* "Prolegomena to the History of Israel," by Prof. Wellhausen, p. 487 (Black, Edinburgh, 1885).

marvellous exposition of the human heart and man's every emotion in dramatic verse of singular power and beauty. Milton followed quickly with his grand Epic; but since then no *great* successor to these has appeared. Nor does any one claim that Poetry has during this long vista improved or even maintained its high pre-eminence. That the world has always been progressively improving from primeval days is certainly not borne out by such facts.

We have had numerous poets of late years both in England and abroad, several of much merit, and we have recently buried the most eminent of them with such honours as perhaps no former poet has received.

Allusion has been made to the tendency of a people to minimize, not the greatness but the intellectual capacity of those who have preceded them. May this not be one of the characteristics of the present time? We are certainly boasting, not without reason, of the great mechanical works of the present day, but are we really more intellectual than all former generations? Have we surpassed Job as a thinker, Homer as a poet, Aristotle as a philosopher, Julius Cæsar as a sovereign, Phidias as a sculptor, or the Italian school as painters? And is our best architecture to be compared with that indicated by the Ancient ruins of the East? Finally, is not our present civilization built up very largely on the discoveries and inventions—material and psychological—of the great thinkers of the past?

We have not mentioned Solomon, but he stands out in history as the wisest man and perhaps the greatest monarch the world has seen. Eminent in government and well secured by the wars of

his father and the Justness of his Laws, he exercised a wonderful influence over all the neighbouring Nations in the interest of Peace and Commerce. This seems to have extended to India, and indeed to Europe. The capital of the world seems to have then been Jerusalem, into which wealth flowed, insomuch that his yearly revenue in *gold alone* was £7,780,000 sterling—an immense sum in those days—besides precious stones, iron, brass, ivory, and spices in great abundance. "Silver was nothing accounted of." * This seems somewhat highly coloured, but his long and singularly peaceful reign might so far explain it. His father left him great riches, sufficient to build his famous Temple, and other great works, such, perhaps, as Balbec in Syria and Tadmor in the Desert.

Before resuming our inquiries into Ancient history, let us here further consider the question of Free-Will in the light of Revelation. All parties, and all Ages, seem to agree in a final Judgment of Man's actions here, with consequent rewards and punishments; and all agree, that at that august tribunal the Supreme Judge will be absolutely JUST. Now is it not presumptuous to say that any Man will be condemned for deeds done by him, if he was not then a free agent? We wished to avoid such arguments, but could find no other so decisive. The subject is not one for human judgment, which is liable to err, or as Shakespeare wrote:—

"Our very eyes
Are sometimes like our judgments—blind." †

* "Graven in the Rock," by Dr. Samuel Kinns, p. 418 (Cassell and Co., London, 1891).

† "Cymbeline," act iv. sc. ii.

TWENTIETH LECTURE.

ANCIENT RECORDS—THE VIEWS OF MR. GEORGE SMITH—MR. MOBERLY BELL—RELIGION—EGYPT, PREHISTORIC AND HISTORIC—THE SPHINX—GENESIS—CREATION OF DUST AND MIND.

LET us again return to the subject of Eastern ancient records. In speaking of the ancient writings generally we have tried to give all varieties of opinion. There is certainty in none of them, and we fear some readers may be more confused than enlightened by their contradictoriness. The late Mr. George Smith, of the British Museum, had given the subject of the Ancient Tablets much study, and besides personally explored the Mounds in the Euphrates Valley. Our space forbids our quoting here, but we will try to give some of his opinions in brief.

We cannot fix the dates of any Monuments before the time of Urukh, king of Ur, B.C. 2000, "but it is quite certain that there were buildings and inscriptions before them, probably long before them, *and two literary works.*" The Isdubar legend, containing the story of the Flood, was *written* at least as early as B.C. 2000. It seems that there had been in the interval between B.C. 2000 and B.C. 1850 a general collating and development of the various traditions

of the Creation, Flood, Tower of Babel, and other similar writings and legends. About B.C. 1600 a new set of Astrological tablets were written, belonging to the kingdom and period of Accad. The principal inscriptions of this period consist of texts in bricks, and on signet cylinders. Some of the latter may be of much greater antiquity. These literary remains consist of Mythological tablets, Lists of gods, Grammatical works, Mathematical works, Calculation tables, Cube and Square roots, Measures, Astronomical and Historical cylinders, Geographical tablets, Law and Law cases, Sale and barter, Wills, Loans, &c., besides other items of much interest and importance,* quite incompatible with the idea of an ignorant or uneducated people.

All these circumstances seem to confirm our oft-expressed opinion that the very oldest Tablets, and the records and legends, Sanscrit and Hebrew alike, give evidence not only of an advanced Civilization, but of Learning and Art *much beyond those of more recent eras* of the world's history, of which similar glimpses have been obtained. In the words of Professor Robertson, of Glasgow, "a standard of life and worship of a much more extensive nature than modern critical historians admit was known at the *earliest* times of which we have evidence." This point is not generally dealt with as its importance demands, hence our recurrence once more to the subject.

Some two years ago a most important discovery was made in the district of Thebes. Underground

* "The Chaldean Account of Genesis," by George Smith, ch. ii. (Sampson Low, 1876).

a large number of Tombs were found of priestly Mummies, apparently buried there for concealment. They are said to relate to the period of the twenty-first dynasty. But of far more importance, perhaps, were some Seventy Cases of Papyri, besides numerous others in the several sarcophagi. Of these several were carried off to Cairo, and the public will probably yet learn the nature of their contents, and of other records long buried in the Egyptian sands.

Assuming the estimate of the most remote of the many dates given for the first Egyptian King Mena, a recent intelligent resident * gives a clever *résumé* of the history of the Egyptian dynasties in accordance therewith. Mena he sets down as the "first earthly King of Egypt," 5004 years B.C. There seems to have been a previous dynasty of gods. This date, which can only have been arrived at by calculation backwards, is made upon the imagined numbers and length of the kings' reigns; for the hieroglyphics bear no dates. Mr. Bell gives Memphis as the northern capital, with the Pyramids of Ghizeh and Sakkarah, &c., as its cemeteries. Egypt at different periods consisted of two or more separate and contemporaneous kingdoms. From this circumstance serious errors may occur in chronological calculations. The first four dynasties ruled for some thousand years of apparently profound peace. During this period "attention was given to the cultivation of flowers. . . . Medicine, Anatomy, and Astronomy were known. . . . The year of 365 days was introduced. . . . The wooden Statues of Rahoteb and

* "From Pharaoh to Fellah," by C. F. Moberly Bell (Wells, Gardner, and Co., London).

Nefert bear witness to an artistic development *which no later period rivalled.*" Whether this chronology is altogether reliable or not, it is evident that we have here indication of a high Egyptian civilization in an antiquity the *most extreme*, for no glimpse of any prior period is obtainable.

The next six dynasties are supposed to extend from 3951 B.C. to 3064 B.C., but of their history nothing is really known. "The Sculpture, *though still fine, shows some falling off from that of the earlier period.* . . . To this period belong the Statues of Tih and Nefer Kha-ra at Sakkarah, as well as the oldest known mummy, that of Sokar Em Saf. . . . The middle Empire commences with the eleventh dynasty, which established itself at Thebes, destined to become the capital of a great kingdom"; supposed period 3064 to 2851 B.C.

In the fourteenth dynasty the country was invaded by the Hittites and the Hyksos, or Shepherd Kings, who ruled Egypt during the 15th, 16th, and 17th dynasties, 2851 B.C. to 1703 B.C. For this period of nearly 1200 years "the history becomes a mysterious and impenetrable blank." Before its close, however, a civil war arose, in which the native Egyptians drove the Hyksos back into Syria. The eighteenth dynasty was native Egyptian, established under Aahmes I. Thebes rose to unrivalled splendour under these Pharaohs — Thotmes I., Queen Hatasou, and Thotmes III. and IV. They overran Syria, Judæa, Arabia, and Mesopotamia. Then were erected towns, temples, and Monolith obelisks; and Karnac was enlarged. To cut out of the solid rock such enormous monoliths must have been a work of immense

labour and skill, and their transportation for hundreds of miles an herculean undertaking,* giving us the idea of a highly advanced condition of mechanical knowledge. Thotmes III. seems to have employed 11,000 captives in this forced labour. We read of "two great obelisks capped with gold." That now set up on the Thames Embankment is probably one of them. About this era Egypt seems to have reached the zenith of her wealth and power. Upon the walls of Karnac we find a list of 115 cities subdued. Amongst those of the "Promised Land" are Kadesh, Megiddo, Damascus, Beyrout, Acre, Jaffa, Migdol, and Rehoboth.

About 1706 B.C. Jacob seems to have settled in Goshen, and the Israelites continued there till the Exodus under Moses, 1491 B.C. The 19th dynasty was established by Ramses, whose son was Seti, who was the father of the great Ramses II. (the Sesostris of the Greeks). At this period the Hebrew chronology may assist us, but hitherto there exists *great contradiction of dates*, without any appeal to other reliable sources. To reconcile Archbishop Ussher's Chronology with the various dates before given, or them with his, seems hopeless.

Seti I. carried his army into Syria against the Armenians, Hittites, and Assyrians, and he conceived the idea of connecting the Red Sea and the Mediterranean. His sister may have been the princess who saved Moses. Ramses II. reigned sixty-seven years, during which Egypt reached her highest military renown and extension. "The walls of Karnac and the Rameseum are covered with the records of his

* "Graven in the Rock," by Dr. Kinns, p. 245 (London, 1891).

exploits, and are reproduced upon the second pylon, and at Luxor and Ipsamboul." This seems to have been the era of Colossi; and Ramses II. appears to have acted the part of a Colossus himself; and was the Napoleon of Ancient Egypt.*

Ramses II. was succeeded by his son Seti II., who, according to some authorities, was the Pharaoh of the Exodus. This, however, is doubtful; Dr. Samuel Kinns says that Ramses II. was succeeded by his fourteenth son, "Menephtah II., the Pharaoh of the Exodus." † The history is obscure until 1288 B.C., when the twentieth dynasty opens with Ramses III., who endeavoured to excel in the magnificence of his buildings and the decoration of his capital. This last of the warlike kings records his victories over the Lybians, Pelasgians, and others. Returning with his prisoners in chains, he offered them to the gods of Thebes. These Eastern monarchs did not entrust their historic fame either to their courtiers or their successors. They built their own tombs and recorded their own valour in terms of extravagant boastfulness. They ignored failures; battles were won by their own personal prowess, and their armies obtained no share of the glory. ‡ They claimed a kind of divine honour: Ra, "who created the world," was also the first sovereign of Egypt, and the ancestor of all the Pharaohs. Sometimes the name of a "Pharaoh was erased from the Temple he had at immense cost erected to commemorate his fame, by one of his successors, who engraved his own

* "Pharaohs, Fellahs, and Explorers," p. 205.

† "Graven in the Rock," p. 358 (London, 1891).

‡ "Ancient Egypt and Assyria," by G. Maspero (Chapman and Hall, 1892).

name in its place." This was frequently done, and especially by Ramses II., at Bubastis, at the expense of a predecessor. Nor was this the only fraud, for by this means he tried to impose on us moderns by making some fine work of Art appear *less* Ancient than it really was, and thus mislead the historians of later ages. "Who," says Mr. Henry A. Harper, "has not seen, when examining temples in Egypt, that all the inscriptions above ground were erased by the different conquerors of the land?"

During the long line of Ramses who composed the twentieth dynasty, Egyptian glory declined: their military prowess was replaced by the priestly class of the Tanis hierarchy. Sheshonk, said to be the Shishak of Scripture, founded the twenty-second or Bubastic dynasty, who built the outer court of Karnac. "The gods bring him the towns which he has conquered"—a somewhat equivocal compliment.

"During the twenty-third and and twenty-fourth dynasties Egypt was hard pressed by the Assyrians from the north, and the Ethiopians from the south." The latter, 715 B.C., under Piankhi, effected the conquest of Egypt, and established the twenty-fifth dynasty. Some fifty years later, the Pharaoh Shubataka, marching to the aid of Hezekiah, was defeated by Sennacherib, king of Assyria. "A few years later his successor, Tirhakah, was defeated by King Esarhaddon, also of Assyria. An unsuccessful revolt was followed by the complete annexation of Egypt to Assyria, and Thebes, the glory of Egypt, was pillaged." Under the Saite dynasty, B.C. 665, the star of Egypt seemed for a moment to rise from obscurity. Psammetik attacked Assyria, defeated

Josiah, king of Judah, the ally of Assyria, at Megiddo, but was himself defeated by Nebuchadnezzar, king of Babylon. Necho is said to have attempted to join the Red Sea, not with the Mediterranean, but the Nile. Warned by an oracle that it would only benefit strangers, he desisted. This dynasty we need not follow farther. It ended in defeat, and finally placed Egypt under the domination of Persia, B.C. 527–406. Under Cambyses, Darius, Xerxes, and his successor, it was known as the twenty-seventh dynasty; then followed a revolt, and a rapid succession of conquerors and pretenders. In B.C. 340 the Persians recovered their authority, but eight years afterwards Egypt fell with the rest of the Persian Empire under the great Macedonian. The Greek occupation was succeeded on the death of Alexander, who founded Alexandria, by the Ptolemies, and eventually like the rest of the world fell under the Romans, who governed it as a province. Some centuries followed of feuds, political and religious, and in A.D. 640, it was overrun by the Mahomedan-Arabs under Omar I., and finally belongs to the Turks under "protection of the European Powers."

The history of Egypt has been a long and most eventful one. Commencing in a prehistoric era, it attained to military greatness under Thotmes III. and Ramses II., and ever since has passed through a series of reverses and invasions, gradually becoming more and more humiliating. One peculiarity is observable in almost all of them. The Egyptian people were by no means heroic; they accepted each conqueror in turn as their sovereign, but instead of their

adopting his national habits he generally ended in accepting theirs, the consequence being a remarkable oneness of features national and personal, with a great variety of gods, up till the Mahomedan conquest, when toleration was checked.

We have in the preceding pages followed Mr. Bell's history for the most part, and frequently used his own words, which are both interesting and amusing. His description of the Boolak Museum is especially so, and is, we think, notably correct. In it are seen material evidences of our world's history for an almost fabulous period, reaching from prehistoric times and the third dynasty down to the Ptolemies. There is an excellent diorite statue of Khafra, the builder of the Second Pyramid of Ghizeh. Near this stands the life-like figure of "the wooden man," of unknown origin. The mummies in cases around are singularly realistic, as Sequenen Ra (this mummy is much decayed and has become offensive), Seti I., and Ramses II. "Their blood may not run in our veins, but their brains have helped to form ours. We are never tired of owning our debt to Athens and Rome, but we forget that Athens herself was what she was only thanks to Egypt, and that the intellectual ancestors of Phidias and Homer are around us." *

These mummies are now upwards of 3,000 years old, but in an adjoining room are the two statues of Rahoteb and Nefert, looking as if carved and plastered yesterday. Yet we are told that they belonged to one of the earliest dynasties, more than two thousand years prior, so that, if we trust this

* "From Pharaoh to Fellah."

chronology, to the Ramses they are already objects of great antiquity.

But older than all stands that wonder of the world, the Sphinx, older than the Pyramids, perhaps older even than Mena. All description fails to give a true idea of this inimitable statue. It has wonderfully withstood the assaults of time and of violence. Time has spared it, but its grand face has been disfigured by the savagery of men, even of our own day, quite incapable of appreciating its refinement. Seen in the dim twilight the mind can, in some degree, rehabilitate the beauty and grandeur of that face, and somewhat enter into the conception of its great Architect. Its base is a mythological cathedral—a challenge to all future ages. Its majesty, its protective air, its power, its silent repose, its peculiar poise and afar-off gaze, all commingle to produce a marvellous effect which the glare of day dispels. To describe it in one word seems impossible. "It stands the monument of the world, one, and unapproachable." It is the ideal of WISDOM AND PHILOSOPHIC THOUGHT. If Mind could be conceivably represented in stone, it is so in this, the oldest of statues.

We have traced so-called history thus fully, and we think it serves to illustrate and support our arguments generally. These are that, instead of a condition of savagism in the farthest-back ages of which we have glimpses, we find a state of extreme refinement. 2nd. Instead of a gradual progress in improvement, we find *quite as often* evidence of gradual retrogression in art, religion, and civilization. 3rd. *At no period have we found a condition of barbarism nearly so gross as exists in our own day,*

in newly discovered detached islands and isolated communities in all quarters of the globe. 4th. As we reach backwards we find a decrease in the number of the gods, and a very near approach to Monotheism, with an increasing spiritual and a decreasing materialistic worship.

Quite recently yet another new discovery of Egyptian antiquity, the most extreme, has been made by Mr. Petrie, of the British Museum. This consists of two stone statues—man and his wife—supposed to have been contemporaries with Cheops, the builder of the great pyramid. They are skilfully carved, painted in natural colours, with glittering eyes of rock crystal. Mr. Petrie says, "These works have *never been surpassed* in Egypt." It is difficult to realize their age, and to believe that "there is nothing older known of human sculpture."

This discovery is one more indication that instead of being progressive, Art has been retrogade in many ways, a fact that we of the end of the nineteenth century are loathe to believe.

In relation to the numerous Insular Tribes, rediscovered in modern times, such as the Polynesians, the old theory that Civilization has progressed from savagism to refinement may *with quite as much probability* be reversed in the case of these detached countries and islands. We can suppose that their *original* refinement may, owing to their insulation, have degenerated to the grossly savage state in which we find them, consequent on thousands of years of separation from large communities and all the centres of civilization. We do not assume this as fact, but simply as more probable than the reverse

theory which appears to us to be too readily assumed. The subject must remain as an open question.

Nothing more confirms the idea of a high standard of worship in remote antiquity than the evidence of a general belief in Immortality. All our glimpses of the past, whether obtained in the most or the less ancient records, and whether relating to the most refined or the most barbarous peoples, reveal the fact that no nation or tribe has existed without some kind of Religion.* A Belief in Immortality and a Religion (even the most debased) seem to naturally infer each other. One writer says, "There is no race of men, however untutored, in which this belief in Immortality is not found deeply-rooted, positive, unquestioning. . . . It answers one of the most imperative, unsilenceable longings of human nature."

If we refer to the Genesis account of the "*Beginning*" of things (and we have no other *less* unintelligible), we find that the Great First Cause *created* (*i.e.*, made or brought into existence) the Heaven and the Earth. Here is a *complete* statement. The 2nd verse, we presume, begins to describe the work of the First Day, but we have no indication of the period of Time between the Original *Creation* and the beginning of the first day's *work*. It was *possibly* sufficiently vast to satisfy the Geologists' requirements for the formation of the *primitive* rocks! In estimating this period, however, some seem to forget that the Condition of the Earth must originally have been essentially different from what it is now. It was probably intensely hot or plastic, or otherwise (under great pressure), not necessitating indefinite millions

* "Lectures on Hebrew Historians," &c., 1889.

of years, as their calculations imply, to form and consolidate the strata of primitive rocks now visible to us. Of this period we can form no idea, but hundreds of millions of years seem unnecessary. There is, perhaps, no question on which learned opinion is more diverse than that of the time required to effect the changes which have been effected in the physical sphere in the past. Hitherto, the estimates of Geologists were vast and indefinitely great; but some writers hold an opinion less extreme.

This is a point of great importance. The former method of calculating backward the age of the primitive strata by observation of Natural Forces now existing is no longer satisfactory. The melting point of solids may be raised by pressure, but while the pressure caused by gravitation at the earth's centre is extreme, the heat must there be correspondingly excessive, as is evidenced by the existence of molten lava occasionally thrown up to its surface. It therefore seems evident that even the *primitive* rocks may, under circumstances so different from those now existing on the Earth's surface, have been formed in periods of time not so vast as those formerly claimed by geologists. In speaking of the Age of the Earth, perhaps, we need no longer use indefinite millions of years. This argument is certainly strengthened by the consideration that the earth is still cooling down, and therefore its temperature at first must have been excessively great, and all forces, Mechanical and Chemical, correspondingly powerful and efficient, as compared with those now existing.

The chemical changes in Rocks under pressure is

a subject deserving inquiry. Under a pressure of 6,000 atmospheres plastic matter and lava might possibly be converted into crystalline rocks, such as granite and the rocks usually called metamorphic (transformed). Heat being another important factor, when added to pressure, greater activity would probably result. With aqueous deposits, clay and sand are by pressure converted into solid stone, as we see in the upper strata. Heat, from whatever source derived, does exist in the mass of the earth; and where it exists thermo-electric influences induce action, which carried on over a great series of years might produce in the end important changes. The subject is one we cannot treat of here, but the reader should refer to "The Evidence afforded by Petrographical Research of the Occurrence of Chemical Change under Great Pressure—a lecture delivered before the Chemical Society, March 20, 1890, by Prof. I. W. Judd, F.R.S."

We read that, after the creation of "the Heaven and the earth," "God moved upon the face of the waters; and God *said*, '*Let there be Light*,' and there was Light." This was the first day's work. Probably the "day" was of vast extension—perhaps beyond our conception, for there was as yet no *measurement* of Time whatever. Now, if we scientifically examine and completely analyse the elements that constitute "the Heaven and the Earth"—*i.e.*, our Earth and its atmosphere—we find that they are all resolvable into mere *Dust*, so that out of dust everything was made! That is to say, Dust was the fundamental germ of all mundane *visible* or *ponder-*

able existences. Even the elements of which the Waters, the Firmament, and even Meteors are formed, Mechanical and Chemical Analysis show us to be but dust. Out of this elemental Chaos, we read that He *by a word* formed or separated first the Firmament (or Expanse) and divided the waters from the waters. This was the second day's work. And then *by a word* He separated the Dry Land from the Waters. Out of the Dry Land *by a word* arose the Vegetable Kingdom. This formed the work of the third day. Then He said, "Let there be Lights in the Firmament," and the Sun, Moon, and Stars beyond the earth (but all belonging to the *Natural* Sphere), He *made* on the fourth day. Then out of the Waters by His *word* arose the Fishes, and every winged Fowl; this was on the fifth day. Lastly, out of the Earth (the Dry Land) by His *word* arose Cattle and Creeping Things, and Beasts of the Earth. The world was now ready for its master. Except the original creation of "the Heaven and the Earth," *all this was, we read, done merely by "the Word of His mouth."* Then the Creator said, "*Let us make Man.*" And He "*formed Man of the Dust* of the ground (*Natural* Sphere), and *breathed into his nostrils the breath of Life, and Man became a living Soul*" (*Universal* Sphere). That "Man was the last-born of creation," says a learned writer, "is opposed by no geologic fact."

It appears that the Creator had thus *created or brought into existence* only *one material thing*, DUST (*i.e.*, "the Heaven and the Earth"), which Dust was itself the element of every material thing which the World contains. This is, perhaps, the most emphatic

testimony we have of the "Husbandry in Heaven"! He *created* nothing else Material, but by His WORD brought forth Life out of Dust, in the whole Vegetable and Animal kingdoms, each individual thereof endowed with the Germ of *its own* exclusive existence, for reproduction in a limited continuation. Man was the *only direct workmanship of His hands.* And Man He *made* of the Dust also. There is a remarkable distinction here. Every thing and creature except Man He created (can we say or evolved?) by *a word.* So Shakespeare—

> "What a *piece of work* is Man!
> How noble in reason . . . the paragon of animals,
> . . . This quintessence of *Dust.*" *

And again—

> "So man and man should be;
> But clay and clay differs in dignity,
> Whose Dust is both alike." †

All mere animal Life was *called* out of Dust ("the dry land"); and Instinct is an endowment of Life, or rather *is* Animal Life (*Natural* facts); but the Mind of Man was not so, but was a *direct creation or emanation* from his Maker, and so a spiritual or *Universal* entity. Hence the distinction we have so much insisted on: *Instinct and Mind are clearly incommensurable.*

This is a fact which we have tried to prove and impress by every possible argument and illustration. It is a fact of immense importance in the question of Evolution; and that may be our apology in thus seeking the aid of Moses—the oldest of Historians—in our Argument.

It thus appears that Animals and physical Man are

* "Hamlet," act ii. sc. 2. † "Cymbeline," act iv. sc. 2.

alike composed of Dust, and although not *of the same creation*, yet of the same Creator, and formed after the same typical plan—the same typically, and yet how essentially different! As we have already said, *His plan is typically perfect*, and further illustrates the Husbandry in Heaven. For it seems clear that God only made Two CREATIONS in the strict sense of that word: 1st, Dust; 2nd, Man (physically and mentally ONE), and together the only one Rational Creation.

This consideration largely explains the misconception which the great similarity in the frames of some Mammals and that of Man has given rise to, and more especially in their state of embryo—similar but *not* the same. Nor does it contradict the truths of Evolution in the Animal World, limited within fixed boundaries.

Some may not think this history absolutely trustworthy. It may not have been written till long after the event, and, when so written, may have been obtained from an old legend. But this is by no means certain, for, from numerous and incidental hints we have obtained in our search after Truth, it seems probable that Writing and Manuscripts were in use in the *earliest* periods of which we have any knowledge; *and* certainly it cannot be affirmed that even the first generation of our race was ignorant of them. But it is probable that such knowledge had been lost in subsequent generations, in a general or all but general degeneracy. The Genesis story differs from almost every other legend so far as we know, in being neither logically nor scientifically *impossible* (at least to those who believe in a Beginning at all), as to us all other theories seem to be.

Before leaving this Genesis history, let us reconsider it in relation to the Evolution theory, by the aid of our TEST. We find recorded first a Primary CREATION of Dust, and next, various secondary (so-called) creations by Evolution out of the same. These include Animal Life (with its coexistent Instinct); but all belong to the *Natural* sphere only.

Succeeding this, we are told that in the latter portion of the Sixth Day, Man was *made* out of Earth (Dust). So far as physical, Man is the same raw material, but not merely *called* into existence as were the irrational Animals. Not indeed of the same Creation, not by evolution out of Dust like them, but, as already stated, *formed* directly by the hand of the great Creator, yet after the same original general type as they. So that physical Man is really an Animal, and although of a higher class, he is physically mortal, and belongs to the NATURAL sphere.

> "For what is Man? Calamitous by birth.
> They owe their life and nourishment to *earth*." *

Here, however, an *entirely new Entity* is CREATED and introduced—MIND, a direct emanation of the Divine —a Spiritual Life, and therefore Immortal, and belonging to the UNIVERSAL sphere.

Thus Man is a duplex being: (1) A Body: MADE of Dust, but *not evolved from it, as the Animal world was*, yet formed largely after the same typical model. And (2) A soul, or reasoning Mind. Not one of "the Animals" by any blood relationship, nor indeed by any kind of family relationship whatever.

* "The Iliad," bk. xxi.

Mortal, and yet Immortal—bound down to Earth, although its Lord and Governor, and with a Mind that can "wander through Eternity," and explore the great ocean of Truth. A creature, so far as we know, unparalleled in the Universe.

Looking at the Creation history in its more minute details, it is evident that the frequent and emphatic use of the words, "*After its kind*," and "Seed after its kind," must have a special meaning. The seed of the Oak did not produce the vine, and the Animals were empowered to produce animals only after their kind. The meaning of "kind" is not exactly definite, but it evidently had a meaning of a restrictive or positive character. We see that Evolution (Limited) began after Creation, but the *extreme* Evolution theory receives no support here. The Creator evolved Vegetation from the Earth by a Word, but Vegetation did not evolve Animal life. By a Word He evolved swarms of living creatures from the Waters, and again by a Word did He evolve Cattle and creeping things from the Earth. But in each case no kind of living creature evolved any other or higher Creature, but each was authorized to produce and multiply *its own kind only*.

Of course in our argument we have *assumed* the authenticity of this history. If we cannot do so, these arguments, which we think logical, are of little value. But, on the other hand, to those who accept the Genesis history, it throws light upon many of the points in dispute such as no other theory does, and this must be our apology for recurring to its exact terms as we have done.

TWENTY-FIRST LECTURE.

ORIGIN OF LIFE—GEOLOGY AND OTHER SCIENCES RE-FORMED —MECHANICS—MATERIALISM—LIMITED AND UNLIMITED EVOLUTION—DR. WALLACE AND DR. DARWIN—THE BRAIN, MENTAL AND ANIMAL—TRUTH—DIAGRAMS.

WE are told that "Science seeks to find general analogies, while Art aims at individual realities." * The popular idea of "Science" pictures it as the *definite* knowledge of Natural Truths. Such it as was once held to be, but in recent years the revolutions of opinion have proved that the definition must be greatly modified. Carlyle "demanded a larger area than that offered by Science for speculative action and its associated emotion." † No science better illustrates this than that of Geology, which has undergone more than one reconstruction during the present century.

"The size of our globe upon the first solidification of the crust must have been much larger than at present, the consolidation and cooling by radiation of heat being necessarily accompanied by the *contraction of the crust* upon the viscous or fluid interior. . . . To this cause we may attribute the elevation

* "George Eliot," by Joseph Jacobs, p. 25 (David Nutt, London, 1891).
† "New Fragments" by Tyndall, p. 387.

of our mountain chains, the depressions of our oceans, and the contorted and fractured condition of all Geologic periods." * In a limited extent now, such upheavals still appear to occur, not altogether by natural internal pressure, but by contraction of the solid crust as the cooling continuously goes on, perhaps creating occasional eruptions such as the recent great one at Java, one of the East Indian Islands, already alluded to.

"That the globe consists of a solid crust enclosing a viscous and liquid mass at a very high temperature enables us to explain the phenomena of the flexuring and faulting of the strata and their local metamorphism more satisfactorily than by any other hypothesis." As to the inequalities on the surface of our globe, they are "less in proportion to its size than the roughness of the peel of an orange to that of the orange itself."

The first appearance of living forms is an event far transcending in interest any subsequent changes of their form and structure. As regards the great question of the Origin of Life on our globe, "*Science has failed to offer any satisfactory explanation;*" therefore, says Dr. Hull, in a question of this kind, "When the lamp of Science fails to point a path, we must have recourse to the light of Reason."

It is generally allowed that upon the earth's surface there have been great variations of climate, notably those of the Glacial and Inter-Glacial periods, during which intense cold prevailed far exceeding that of any historical period, the cause of which has not been explained upon any mundane

* "Geological History," by Prof. Hull (Deacon and Co., London, 1887).

basis, but which possibly some Astronomical influence might account for.

The Epoch of Man is said to have followed when "a gradual amelioration of climate took place, notably in the Northern Hemisphere, while at the same time the relations of land and sea approximated generally to those now established." At this epoch Man was an inhabitant of our continent. At what exact period he made his appearance in Europe is not fully determined, but there is no satisfactory evidence of the presence of Man till the close of the Glacial Period itself. Dr. Robert Chalmers said that the creation of our own species is a *comparatively* recent event.

In this volume Geology has received a mere fraction of the attention which its great importance deserves in our discussions. To render it justice in this respect would demand much more space than could be afforded in a single volume.

In the present day Geologists seem to study their science not so much by travelling with their hammer as by the examination of the constituents of their specimens of rocks and fossils in the laboratory. The Microscope has become to them the great secret-revealer, as the Spectroscope has to the Chemist, and the Telescope to the Astronomer. But other Sciences have been and are being re-formed also, and revolutionized almost as much as Geology —such, for example, as Chemistry. The Marquis of Salisbury, in reference to the great progress of Chemical Science during the last half-century, recently said that the road to further new discoveries was still open. We think that in speaking of the

great value of Nitrogen as a fertilizer, he said that some young chemist might yet discover a method of abstracting it out of our atmosphere to enrich our soil and save the expense of bringing Nitrates by sea from foreign ports thousands of miles distant. Electricity and Electro-Magnetism have made immense progress, as we have already shown, and we are probably on the eve of yet greater discoveries. They seem to be binding all the world into one community, and aiding man's progress and work in almost every department. Even History and Geography are being greatly modified. John Fulford Vicary relates that America was discovered, and New Jersey, Delaware, and Maryland visited, A.D. 1003–4, by an expedition of Northmen from Iceland and Greenland. They found grapes abundant, and named the new country Vineland. Mr. Vicary views the narrative with some doubt, and certainly the curious old Map which accompanies it, has somewhat the appearance of a Saga Myth.* Meantime Christopher Columbus (1492) must retain the honour of the discovery—as Shakespeare, not Bacon, must retain the glory of his dramas, and Homer, not the "Committee of Pisistratus," must remain the author of the Iliad and the Odyssey.

Even in our own national History many curious instances of metamorphoses made during recent years, both in facts and in opinions, will occur to our readers. "History," said Voltaire, "is only a record of crimes and misfortunes;" and perhaps the quaint remark of Novalis, that "History is a huge Anecdote," is not altogether unwarranted. "History,"

† "Saga Time," p. 197 (London, 1887).

says Mr. Peyton, "is printed in books. . . . The real historical record is in the souls of the living generations. . . . It is an arterial circulation, directing the health and destiny of nations."* Of the other Natural Sciences many are comparatively modern and secondary, but no Science has been so little affected by change as the old and fundamental one of Mechanics, which may be called the Mother of Natural Sciences. This arises from the fact that its propositions are more clear and definite than those of any other science, and hence its study is the best education for the Mind. Embracing in its laws Astronomy, which is in one sense a branch of pure Mechanics rather than a separate science, its visible operations in the heavens are daily and nightly brought before our Mind, and greatly interest the ardent student by a grandeur and sublimity altogether unparalleled. In its essence it is somewhat analogous to Geometry, which the other Natural Sciences are not. The most ancient of all the Sciences is that of Mechanics. It was the mental arena of Archimedes, Galileo, and Lagrange. In this field Kepler and Newton and Watt made their grand discoveries. Yet even in the face of the great advance of education generally, the ignorance of the Laws and even the *common facts* of Mechanics and Astronomy in society at large is somewhat remarkable.

We have seen that the Evolution theory, which, however, cannot rank as a Science, is not without numerous arguments in its favour. It has also numerous advocates in almost every field of erudi-

* "The Memorabilia of Jesus," p. 18 (A. and C. Black, London, 1892).

tion, and no seeker after truth can set it aside or evade its consideration. The result has been a widespread belief in it on the part of scientists, but still more wide in the general field of Literature. There is something simply beautiful and easy of belief in the idea that all visible things have grown out of a single Monad, or an invisible Gas, and that the process of improvement is still going onward towards an indefinite perfection. Such belief may not be very logically defined, but it has great attraction for the young.

But those who search deeper into its merits soon discover that such a theory is illogical and baseless, and that there are two or rather three different classes of Evolutionists. First, those who believe in unlimited Evolution. We have alluded to Prof. Haeckel and others, who belong to this class, and the numerous body of pure Materialists and Monists may also be included under it. Speaking of these, Prof. Huxley once wrote that "the Materialistic position, that there is nothing in the world but matter, force, and necessity, is as utterly devoid of justification as the most baseless of theological dogmas," and Prof. Tyndall equally repudiates the erroneous impression that he is a Materialist.

The second class, of those who accept Evolution in a limited sense, is much less distinctly defined, because, of its members, scarcely two of eminent attainment agree as to a common Evolution platform. It is, we submit, a mistake to refuse a place in this class even to Dr. Darwin, and still more so to Dr. Wallace. Of living men probably the most eminent Evolutionists are Huxley, Tyndall, Herbert Spencer, and others already mentioned. We have seen that

they differ somewhat from each other, and sometimes *apparently* from themselves. A still more numerous body, amongst whom are Max Müller and other eminent writers, are distinguished from those previously described in being Evolutionists in the *material* sphere, only, not admitting the evolution of Mind from Matter, nor of Man from the Ape under any circumstances, time or place. The Evolution theory as held by this last party is, we think, making progress of late years.

An important addition to the literature of Evolution, and its present position in the scientific world, which has recently appeared from the pen of one of its original discoverers and leading advocates, will repay study.* Dr. Wallace, than who, perhaps, no man has a better claim to be heard, has given us an elaborate exposition of Darwinism from a Naturalist's point of view. He treats at length the subject of *Variation* and the effects of *Selection*, both Natural and Artificial, generally supporting Dr. Darwin's theories. He says, "Although I maintain and enforce my differences from some of Darwin's views, my whole work tends forcibly to illustrate the overwhelming importance of Natural Selection over all other agencies in the production of new Species."

To us the great interest in this volume lies in its last chapter, and especially the paragraphs entitled, "*The Origin of the Moral and Intellectual Nature of Man*," and "*The Argument from Continuity*." It seems to have been *assumed* "that man's entire nature and all his faculties, whether moral, intellectual, or spiritual, have been derived

* "Darwinism," by Alfred Russel Wallace (Macmillan and Co., 1889).

from their rudiments in the lower animals! "This conclusion," says Dr. Wallace, "appears to me not to be supported by adequate evidence, and to be opposed to well-ascertained facts."

Dr. Darwin's mode of argument consists in showing that the rudiments of the mental and moral faculties of Man can be detected in some animals. "The manifestations of intelligence amounting in some cases to distinct acts of reasoning, are adduced as exhibiting, in a much less degree, the intelligence and reason of Man." * Instances of curiosity, imitation, attention, wonder, memory are given.†

We have shown that these "facts" are either controverted or are merely instances of Instinct—Intelligence.

Setting aside the objection to this theory that it is largely materialistic, and, so far as it is so, condemned by so high an authority as Professor Huxley, readers who have followed us in these pages will have little difficulty in seeing the fallacy in the preceding assumptions. But we will try to recapitulate and illustrate them very briefly in detail.

The Brain, although material, is not itself one of the organs of sense, but is the seat or centre of *Life* which receives all its instinct-sensations, motives, and knowledge through the several Sense-organs, and through them holds its instinct communications with the outer world. This is true of the lower Animals (and, to a certain extent, of Man), whose actions are ruled by the Life, or its factor the brain, through a network of nerves of marvellous fineness and com-

* "Darwinism," p. 461, by Alfred Russel Wallace.
† "Descent of Man," chap. iii.

plexity. However, Man's *Life*, although influenced, is not governed by Instinct Motives. Man, although not one of "the Animals," *is an animal*, not by descent from the lower Mammals, but made somewhat resembling them, being physically created after the same *perfect type* or design. As we have already said, he *is not of the same creation* as they, but has the same Creator, and possesses certain mental and other high endowments not needed by them—for great is "the Husbandry in Heaven." Each has a frame, *the very best possible, for its or his uses specially*, as we have already seen.

But to say that Man's human nature, "Moral, intellectual, or spiritual," has been derived from rudiments in the lower animals, is an unwarranted assumption, and evidently contrary to fact. This fallacy is completely destroyed by the aid of the *Test-fact*, as we have already shown, which proves that morals and intellect (Reason) are not *Natural*, but *Universal* or spiritual truths, and that mere animals possess no rudiments thereof whatever, Instinct and Mind being absolutely incommensurable.

Man's brain, besides having its mere Life (Instinct) *attributes*, is also the *seat* of purely Mental (Mind) faculties, and is, or rather its frontal and *higher* portion is, the mysterious centre of thought (Reason) and whatever ennobles Man, and crowns him king and master of all other living creatures on the earth. Hence, Shakespere's description:—

> "See what a grace was seated on his *brow*:
> Hyperion's curls; the *Front* of Jove himself.
> An eye like Mars to threaten and command.
> To give the world assurance of a MAN." *

* Hamlet, act iii. sc. 4.

No doubt Men have sunk into Savages in many cases, but even Savages possess some germs of reason, and all possess its infallible index—Language. Man's brain—even in the oldest fossil—we find to have been, as now, *very much loftier* than those of the mere Mammals, and different in relation to form, to size, and to physical power. Farther, what is of great importance, it appears that there is no inferiority in the oldest fossil skulls of human beings as compared with those of the present day.

Neither Variation nor Natural Selection, nor any periods of time however vast, can explain all the facts of the case. These agencies are circumscribed within fixed and narrow limits. The usual mode of comparison by mere weight or size of brain in Man and the beast is most misleading. The Animal portion of Man's brain may not necessarily be so large as that of some beasts, but the frontal upper portion of Man's brain, *i.e.*, that having relation to Mind, has no parallel in that of beasts at all, because they have no coronal region or mental portion, corresponding to Man's forehead.

The comparison should be not in the weight but in the height of the brain. Let any reader who doubts this pay a visit to the Zoological Gardens and look at the heads of the animals there. It will be seen that above the level of the eye-line, or rather the level of the temples, there is no room for brain beyond the space *necessary*, perhaps, to cover some organs of mere Intelligence, and properly support the skull. In some animals this is not so obvious as in others, because, for horns or high ears, or the thickness of skull and muscle-covering, needed to give fighting

power, considerable material mass is necessary, but not Brain.

No animal, not even the dog, the elephant, or the horse, possess any Mental brain. Man only possesses *Intellect:* Animals may possess mere *Intelligence*, but no Reason.

What seems to us a remarkable corroboration of our argument that Animals do not possess the coronal region of Brain which distinguishes Man, is found in a statement made many years ago by the late Professor Owen. Want of space prevents fuller quotations, but the following is quite sufficient for this point: "In the human skull the mid-line traced backwards from the super-orbital ridge runs along a smooth track. In the gorilla a ridge is raised from along the major part of that track to increase the surface giving attachment to the biting muscles. . . . *In man the corresponding muscles do not extend their origins to the upper surface of the cranium, but stop short at the 'temples,'* " so leaving the requisite space for mental Brain.

Mr. Norman Pearson is one of the recent advocates of reason in Animals, and consequently of their Immortality. He writes, sceptically, "Eternal life for the bushman, eternal death for the fox-terrier!" Again, "It is difficult to justify the awful waste involved in this supposed annihilation of Animal Minds." This argument is fair enough if Animals really possess *any* Mind or Mental faculty at all, but we have seen that this is absolutely untrue, and hence no waste. Not only does their brain not correspondingly "approximate" to that of the lowest healthy brain in Man, but *they possess no mental*

brain whatever, and the distinction is not one of degree but of kind. The line of separation between Man's Instinct Brain and his Mental Brain or Coronal is shown by Owen to be the "temples" at the level of the termination of his "biting muscles."

We think these views on this most important point are, to some extent, supported by another very high authority. He writes thus: "The functions of most of the parts of the brain which lie in front of the *medulla oblongata* are, at present, very ill understood. . . . There can be no doubt that the cerebral hemispheres are the seat of powers, essential to the production of those phenomena which we term intelligence and will." Again, "there is no doubt that a molecular change in some part of the cerebral substance is an indispensable antecedent to every phenomenon of consciousness; and it is possible that the process of investigation may enable us to map out the brain according to the psychical relations of its different parts." But "the reason of the connection between the molecular disturbance and the psychical phenomenon appears to be out of the reach, not only of our means of investigation, but even of our powers of conception." *

Mr. S. Baring-Gould, in regard to the connection of special phenomena with a certain portion of the Brain, writes as follows: "There is a nerve goes from each eyeball into the brain, and afore they enter it they take a twist about each other, and so coupled, march in together. If it were not so we should see double, and neither eye would agree with the other."

The marked distinction between Man and the

* "Lessons on Elementary Physiology," chap. xi., by Thomas H. Huxley, LL.D., F.R.S. (Macmillan, 1890).

lower Animals is best seen when they are viewed in similar positions and postures. The entire absence of Forehead and head-crown in the brute, becomes obvious when set side by side—the Man in his usual standing position, and the Animal set *in a corresponding one*—that is, both having their Spines in the perpendicular. Thus the line of vision in both will then naturally be parallel to the horizon, and at right angles to the perpendicular, as shown in the annexed diagram.

Various animals, indeed, appear to have some head-crown, but, we repeat, such consists only of a mass of Muscle-fibres and other tendons, necessary to give weight and strength for fighting power, or to furnish root for horns, as in the case of the Antelope. Or to give lifting power to the Elephant and the Bull; or to provide for long ears, as in the case of the Horse and the Dog. Perhaps, also, specially for the roots of the powerful Muscles of Mastication required in beasts of prey, and those which feed on bones, nuts, and roots, as the Lion, the Dog, and the Ape. These Muscles in Animals all concentrate in the *top of head*, and thus form a compact protuberance. In Man it is different, his Muscles of Mastication are comparatively small, and their roots reach only to the level of the Temples. Thus Man's Brain has no covering-roof but the Skull itself. *If this is so*, the fact forms one more universal and marked distinction between Man and even the Quadrumana (the highest Animals)—a difference of Structure such as Natural Evolution does not account for.

In such a position, it can be seen that the Animals have no room for Brain higher than the level of the

eyebrows. In Man, the Mental Brain rises altogether above this level, and consists of what Phrenologists call the seat of the purely Intellectual faculties, as distinguished from the Perceptive faculties common to both. To use the words of Professor Huxley, "there can be no doubt that the Cerebral hemispheres are the seat of powers essential to the production of those phenomena, which we term intelligence and will" (Mind).

It might be supposed that in Man there would be some wall of separation between this *Mental* brain and his Instinct brain. But this cannot be, for if so, the reasoning Brain would have no means of communicating its thoughts, wishes, or commands to, or of receiving from, the outer world knowledge of any kind—would, in fact, be shut up as in a prison.

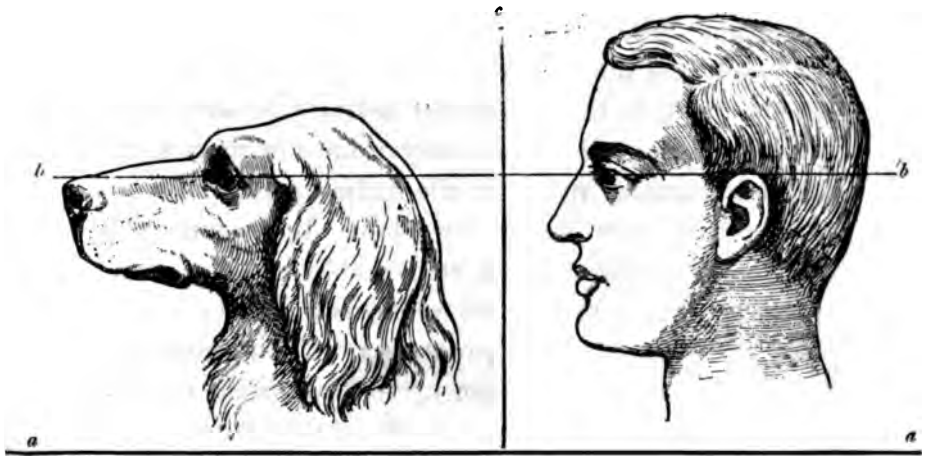
But this Mental Brain is in intimate communication with Man's Instinct Brain throughout by a wonderful system of Fibres, by which it controls the whole body and commands his entire Nervous System. This vast network is so very fine as to be only partially visible even with the aid of the Microscope, and is one of the most wonderful of Nature's works. It seems probable that these Fibres concentrate in, or pass through, the *Corpus Callosum*, a tissue near the centre of the head which may be supposed to be a kind of "Central Telegraph Station," receiving and communicating messages from and to every portion of the body. It is said that any injury or disease in this central tissue is the cause or else the indication of insanity in Man. Experience has shown that injury to any portion of the Brain is far less so.

Such is the reasonable conclusion which suggests

itself after a careful study of the facts given in the valuable works of Owen and Huxley, and other writers on Anatomy. To give quotation here would involve the use of a nomenclature by no means suitable for our Book. Another writer has discussed the subject at great length ("The Brain as an Organ of Mind," by Professor Bastien). To several of these writers, the reader who wishes to study the matter should refer.

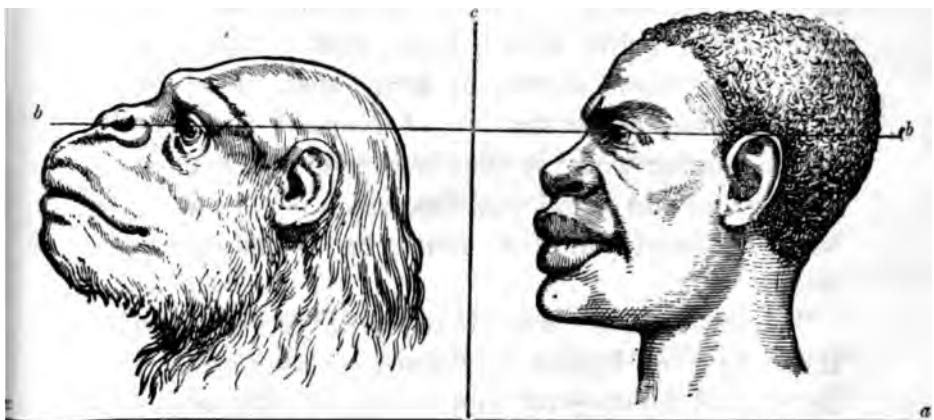
This last-mentioned writer advocates the idea that Mind is not an Entity at all! and that the Brain is not the sole Organ of Mind. His arguments are extremely numerous and metaphysical, and seem to form a kind of Mechanical Materialism. While his facts, which are valuable, may generally prove correct, his indicated conclusions thereon appear to us neither warranted nor satisfactory, and in the light of our Test fallacious. He gives numerous anecdotes to show that Reason is possessed by several animals. These, when examined, seem to us only to illustrate Instinct-Intelligence, with a high degree of Imitation and Animal Memory, and at best can only be described as "highly remarkable," but not more so than some instances we have previously considered and found to be irrelevant, when carefully examined.

Quoting Lewis, he says, "The Savage is not less incompetent than the Animal to originate, or even understand a Philosophical conception. Such assertion, if true, could only be proved by experiment, as shown in Lecture XIII. This may apparently be true because the Savage as such is *ignorant*, yet education and training may remove his incapacity; but no training will ever do so in the Animal. With us he



1 Dog (Shepherd's Collie). 2 Man (Educated European).

a, Horizontal Line. *b*, Line of Vision (parallel thereto). *c*, Perpendicular (parallel to Spines).



3 Ape (Gorilla). 4 Man (African Negro).

agrees in saying that "Every Intellectual and Moral Process—just as much as every lower Sensational or Perceptive Process—involves activity of certain related cells and fibre networks, . . . and as absolutely dependent upon the functional activity of such networks." Human Beings, however, are not mere Conscious Automata, although the Animals may be so.

To return now from our long digression—Dr. Wallace concludes with a remarkable passage, from which we can only extract a few sentences: "The three distinct stages of progress from the inorganic world of matter and motion up to Man point clearly to an unseen universe—to a world of Spirit, to which the world of matter is altogether subordinate. To this spiritual world we may refer the marvellously complex forces which we know as gravitation, cohesion, chemical force, radiant force, and electricity, without which the material universe could not exist in its present form."* While we entirely differ with the learned writer who believes that "Man's body may have been developed from that of a lower animal form, under the law of Natural Selection," we can concur with his closing words: "We possess intellectual and moral qualities which could not have been so developed, but must have had another origin."

The question of "a world of Spirit" is one outside the sphere of logical treatment, belonging to the occult and mysterious, and so beyond the scope of our Argument. "It certainly is with his Intellect as well as with his emotion that Man has touch with the Divine." Coleridge truly said:—

* "Darwinism," p. 476.

"He prayeth well who loveth well
Both man and bird and beast."*

Music seems to be a remaining link connecting earth with heaven, and may be reckoned as belonging to the *Universal Sphere.* Balzac said, "God is the Author, Men only the players. These grand pieces which are played upon earth have been composed in Heaven."

A Veda says, "In the midst of the Sun is Light, in the midst of Light is Truth, and in the midst of Truth is the Imperishable Being."

The three Graces are Faith, Hope, and Charity (Love); *Love* is supreme, and is held to be our best definition of God, but God is also *Light.* All these are of the *Universal* sphere, for there is Light other than that of the Sun. Plato said, "God is Truth, and Light is His shadow." Hence we may say that "*Love is Truth.*" If so, then in this constructive sense Pilate's question is answered.

Charles Swain wrote:—

"I cannot go
Where universal Love smiles not around,
Sustaining all yon orbs and all their Suns.
. . . . . The Spirit-bond
That links the Angel to humanity."

A recent writer says: "Natural Religion, based on observation of natural phenomena, refers to more or less probable relations between the visible and invisible world. . . . The observed harmony of Nature seemed to point to one force above all others—to an aboriginal force. Incapable to define the essence

* "The Ancient Mariner."

and origin of the same, some Orientals assumed the eternal existence of an invisible, and apparently non-material, world-pervading natural force, of an ether, breath, or spirit." Already in the times before Abraham, "the 'holy spirit' was somehow mysteriously connected with 'the all-knowing Spirit,' or Ahura-Mazda, the Ormuzd of later times. . . . Whether God or not, a Spirit was conceived as the highest personal representative of the eternal Spirit-power in the Universe. . . . In its origin Buddhism, like its source Zoroastrianism, was decidedly spiritual. . . . The earliest . . . tradition in the Zendavesta, which had been verbally transmitted during many centuries, indicates that . . . the all-knowing Spirit reveals his mysteries to such men as are led by the good Spirit." *

Apart from Ancient Ruins and the Hebrew and Veda writings, we know nothing of primeval and prehistoric truths, but from these may infer that Man in mind and body was constituted very much as now. History, as now, very much a record of their great or good men: this lost, their wisdom, less or more corrupted, has probably percolated down to us through the Ages in myth and parable.

* "Islam or True Christianity," by Ernest De Bunsen, pp. viii. and ix.

TWENTY-SECOND LECTURE.

THE ARGUMENT SUMMARIZED—CONCLUSION.

WE must now draw our arguments to a close. They have been extremely diffuse, and we can only touch upon a few more points, leaving them in a somewhat disconnected position. For, as the intelligent reader will have realized, these Lectures are not Essays, but have been undertaken chiefly to *examine* and expose the weak points in several popular Fallacies, and not to advocate new theories—other, indeed, than the main one of this work, and those secondary ones necessarily flowing from it.

Knowledge has been represented as a vast field, its boundaries to human eyes invisible. Here the sciences are all spread out, each in its fitting place, and not only so, but each bordering upon and supporting the others, while ruling over all is TRUTH. No Fallacy exists therein, because such can find no place in it, and authorities are automatically excluded.

We have treated all Revelations as we treat Herodotus—that is, as Histories, whose truthfulness is to be examined by internal evidence, by

surrounding facts, observations, and results (altogether irrespective of Creeds), and especially by their *Possibility*.

To those who believe in an Original Creation at all, we have shown the fallacy of supposing that it was *necessarily in any sense Imperfect*. This inasmuch as ONE so infinitely powerful as to create our Solar System was not likely to do His work in any sense defectively, by creating dumb animals only. These were created certainly, but all as servants and subjects of Man. And *if* He created Man—assuredly a perfect MAN in every respect.

Another of the Fallacies we have examined is that Logic is unreliable. Nothing is more untrue; for pure Logic is directly allied to Geometry, and therefore a *Universal* Truth. A Theory may be probably true, or it may be possibly true, or it may be doubtfully true; but if it can be *proved* to be illogical or impossible, it is simply false.

Here we must consider two questions which have often been raised, to wit: Is not God the Author of Evil by permitting its existence? and again, What is Sin? The answers are, we think, obvious enough. By not permitting evil He would be entirely depriving Men of their liberty and free-will, thus rendering them irresponsible beings, and blind slaves, incapable of merit or well-doing. As to a definition of Sin, there seems only one possible. Whatever is opposed to God or to the Will of God is Sin, whether in the World or throughout the Universe, and Sin is of the *Universal* Sphere.

The question of Doubt is one deserving of the greatest consideration. Many men of the highest

quality of Mind have been affected by it, and their very doubts are evidence of conscientiousness. "Men who desire to learn must first learn to doubt," says G. J. Romanes: * and—

"He fought his doubts and gathered strength."

wrote Tennyson. A recent writer has said: "The power to obey or to resist is the first gift of God to a free being. . . . It is in this that progress in good or evil consists, to which the perilous prerogative of Free-Will forces us." Again, "In Man Instinct is his first master, but not his eternal tyrant. Man, can, with the help of Conscience and reflection, overcome his lusts. . . . From this faculty of self-government springs the power of progress in mankind." † This word Progress can only mean improvement in the mundane sphere by experience, for original Man was, as a Man, made perfect.

The Fallacy that Instinct is Mind in the germ, is one of the most prevalent and difficult we have had to deal with. We can only refer to the Lectures in which we have treated it at considerable length, and, we think, logically. But it is evident that this fallacy is deeply imbedded in the public mind. The importance of a true exposition of the point is very great, because if we succeed in exposing its falsity, we *thereby* overturn the extreme Evolution Theory of the Ape and Man, for the two theories are evidently contradictory. Of Evolution *Limited* we express no doubt whatever.

And Pilate's question yet remains unanswered.

* *Contemporary Review* for February, 1891.

† Professor Godet's "Studies" (Hodder and Stoughton, 1886).

In a recent volume, the Duke of Argyle again came to the front in the inquiry.* All previous definitions, such as that of Mr. G. H. Lewes, are perhaps true as far as they go, but they are more like axioms than definitions. The Duke says that Truth is both definable and accessible. We believe this is true, but it has not yet been definitely shown to be so, even by the pens of our most eminent writers, of whom he must certainly be reckoned as one. We repeat our opinion that the task will not be *possible* until we find the necessity of *first* seeing that Truth is of two Spheres.

While we have tried to make our Arguments as final as possible, and at all events logical, our Readers will fail to be satisfied with at least one of them. Almost all Philosophers have agreed, as we have seen, that the origin of Matter *or Dust* in extreme abstraction is unknown, but it is also true that Matter is indestructible by Man, and that any cause or method of its annihilation is equally unknowable. The same remark applies to the Forces of Nature. It will be observed that we have treated both Matter and its Forces as being without Continuity, a fact, however, which we can *assume only by logical deduction* from the two kinds of truth. For both belong to the NATURAL Sphere, and consequently cannot be Immortal. As being Mortal, their end must come sooner or later. As to the Natural Forces, the theory that any such Force may be apparently destroyed by some Counteractive force, and that again by another Counteractive force, and so on indefinitely, may seem logically evident to us; but

* "What is Truth?" by the Duke of Argyll, K.T., 1889.

the act or method of its final destruction is as unknowable as its original creation is. Thus we are confronted with a question utterly irresoluble by reason, and our helplessness is evident. There is no known Force or power in existence which, even with an indefinite period of time, is of any avail here.

Fire, we have said, is the great destroyer of Natural Forms, but it cannot finally destroy *Matter*. This Earth may be burned up; but its ashes and its gases would remain. If these again are burned up, still there remain ashes and gases as before. The form may be destroyed, but the remains continue to exist, and will still possess their own ponderosity *entire*, as *Dust*. As to the Natural Forces, these are not separate *entities*, but properties, and cannot exist at all irrespective of Matter, of which they are merely attributes.

The Theologians can of course get over this difficulty by saying that "if the great Creator made Matter at first, He can of course, by the *same* power, decree its non-existence"—a kind of argument which admits of no reply.

Almost all Philosophers have acknowledged that there are some Truths beyond human comprehension, and this is one of them—further search here being vain. Mr. Herbert Spencer, who is no Materialist,* speaks of "the mystery which Matter universally presents, and which proves to be absolute."

We have thus, in the discursive manner prescribed

* "Pre-Organic Evolution," by Charles Chapman, LL.D. (T. & T. Clark, Edinburgh, 1891), p. 190.

for ourselves at the beginning, though at greater length than intended, pursued our inquiries into the wide domain of Truth. In bringing them to a close it seems necessary to give a short Summary of the principal points in the Argument, which we have attempted to set each upon its proper pedestal of reason and deduction.

I. TRUTH IS ONE BUT OF TWO SPHERES—*Natural* and *Universal.* This distinction affords a TEST which may be made applicable to all complex Theories.

II. Instinct—that is Animal Life—is a *Natural fact*, Mortal, and distinct in kind from Reason; whilst Mind or Spirit is a *Universal* ENTITY, and Immortal. Consequently, Instinct and Mind are absolutely Incommensurable. Matter itself, being mortal, is of the Natural Sphere, and therefore cannot be Immortal.

III. The Forces of Nature, being Mortal, cannot be indefinitely continuous. Whilst the Evolution of Species may not be inconceivable, the Evolution of Mind from Instinct, that is of Man from the Ape, is evidently impossible — as shown by our TEST.

IV. The prevalent opinion that Man was originally a Savage is simply an assumption. The glimpses which we get of antiquity the most remote, generally indicate that Civilization has been retrograde; and this theory is certainly as probably true as that it has been progressive.

V. The world and all that it contains is subject to Man, as also are the Forces of Nature, under the limitation of laws. All is for his discovery, investigation, cultivation, and use, in promotion of his well-

being, so long as the present planetary system endures; for, being of the *Natural* sphere, it cannot be everlasting, although the human Mind is so.

VI. Man is possessed of entire Freedom of Will, and its necessary concomitant, Conscience. All theories opposed to this fact lead to self-contradiction. The Free-Will-of-Man doctrine is indeed the key to the full development of moral truths. Animals are entirely devoid of Free-Will. "Nothing," says Weismann, "impresses the stamp of truth upon an hypothesis more than the fact that its light renders intelligible not only those facts for the explanation of which it has been framed, but also other and more distantly related groups of phenomena," and this, we think, Man's Free-Will does.

If the juvenile reader can take firm hold of this truth—the Freedom of the Will—he will find that it removes most of the perplexities of philosophic study.

This Summary, however, is by no means complete, and we must refer to previous Lectures. There remains one point which deserves the attention of Evolutionists. It is this: We find no indication, either from the oldest hieroglyphics (carved in relief) or picture-writings of the tombs, or their phonetic symbols, that any change or improvements whatever have (during, say, 5,000 years of time) been made on the Animal Forms either of the brute or of the man. Dr. Isaac Taylor tells us that "The Egyptian Fellah still exhibits the *precise* type seen upon the monuments." Each and all have produced, and continue to produce, after their own kind, and after their own kind *only*. Nor is there any evidence of

change of Man's propensities, passions, or emotions. As in the days of Nimrod, so in those of Rob Roy:—

> "The good old rule
> Sufficeth them, the simple plan
> That they should take who have the power,
> And they should keep who can." *

And so it is now, as we see in Europe and Africa, Asia and America. The war-paint may be refined by circumstance, by religion and "civilization," but Man's propensities continue under all disguises. Human Nature remains Human Nature still. At the commencement of historic time the whole world so far as known to us, and all countries since discovered, were Polytheistic. The one exception was that of the Hebrew beginning with Abram. Moses informs us that he was "called" of God to found a nation of Theists. No doubt there were always individual worshippers of the ONE God, such as Shem, Job and his Friends, Melchizedek and others, before the formation of the Hebrew Nation. We cannot speak of Japheth's descendants, but those of Ham became the leading nations and the chief promoters of Polytheism, which rapidly increased, but with an increasing degeneracy in Art and Civilization.

It is certainly remarkable, that now in Modern times, the nations claiming to be Theists have been, and still are, obtaining supremacy in the world, while all the others are declining in power, political importance, and education.

While there is good reason to question our

* Wordsworth.

assumed superiority over the earliest race of Mankind in mental refinement and civilization, there is apparently one point in which we are possessed of a great advantage over them. That is in our rapid and multiform means of travel and intercommunication, which have greatly promoted physical improvements. We have seen that there must have been in the earliest times some communication between countries the most widely separate, but by means unknown to us. Within the present century we have made immense advances in this direction; and if we look back over three or four centuries we see vast improvements, beginning with the printing-press and its rapid multiplication of manuscripts. Nevertheless we are not yet content. There is a singular interest that attaches to every relic of extreme antiquity which indicates an innate sentiment of anxiety to penetrate the mist which conceals prehistoric times. So far, we cannot claim any clear advance in Art or Intellect, although Knowledge may be more widely diffused.

It will have been observed that our arguments are to a large extent different from those of the conventional Scholar and the Theologian; and our treatment is obviously divergent. Those interested in the several subjects dealt with should refer to the works of such Scholars and Theologians for the fuller discussion which, in the compass of this volume, we have been unable to attempt.

"It is an extraordinary thing that Man, with a Mind so wonderful that there is nothing to compare with it elsewhere in the known Creation, should leave it to run wild in respect of its highest elements

and qualities." Such were the words of Michael Faraday, one of the most thoughtful and cautious Philosophers of our century. If our discussions have been fairly carried out, we and our readers are free of his censure, for they have been intimately connected with these highest elements and qualities of Human Knowledge, certainly the best training for the Mind.

We have in our search wandered over a great variety of subjects not very obviously connected with our main Argument, but have been led into them from believing that they are just such as *interest* and present difficulties to almost all new Inquirers after Truth. We mean those (other than the Schoolmen) who are nowadays beginning to study such questions, but are repelled not a little by the voluminousness and contradictions of the great authorities. We have generally merely looked at these subjects somewhat after the manner of bees in a flower garden, giving very numerous but brief quotations from Savants of the most opposite views—using our own words only so far a logical examination of them required. We must urge the readers for whom we write to search the best authorities for more light, and then judge for themselves.

It is difficult to overtake the almost marvellous strides of Science, but so far as Scientists establish new Facts (not speculations), the student may safely adopt them; for in this field they are supreme. And we believe that more marvellous discoveries are before us in the near future, not in any one science only, but in the wide domain of human knowledge. If Scientists seem to err, Science is not at fault, and

the cure is more Science. However, Scientists as such are not authoritatively warranted to speak as experts in the Science of Mind; for, as we have seen, their habits of thought are different from those of the Philosopher. Perhaps some highly-intelligent and fairly educated men of logically constituted mind may, *in some respects*, be as able as they are to act *as jurymen* upon evidence in most matters of pure Philosophy, because less likely to be theory-makers.

Our main object has been not to dwell upon the contradictions of several Philosophers, and the consequent confusion of thought which exists, *but to draw attention to their chief causes.* These arise, we believe, from illogical treatment, and mainly from overlooking the *paramount* importance of keeping clear the distinction between the Two SPHERES OF TRUTH—the NATURAL and the UNIVERSAL. Even the old discoverers of this fact have failed to do so throughout their own writings. They appear not to have realized its necessity, nor to have seen the Completeness and the profound depth of the line of demarcation between the two. This again has partly arisen from treating *pure* Geometry as only a NATURAL, instead of a spiritual or UNIVERSAL Science. Perhaps this is the first time that the distinction has been so directly placed in the forefront of Psychological illustration and study; and we have insisted upon doing so as essentially *necessary*, perhaps as fully and quite as far as our readers' patience will tolerate.

About the Evolution Theory, in which (Limited) we believe, we have written quite as much as is warrantable without systematic arguments. The

claim made by some extreme Evolutionists, that Man is really descended from the monkey, is certainly one which, to use Hamlet's words—

"Must give us pause!"

. . . . . .

Readers, may each of us be able to say with the late Laureate:—

"My own dim life should teach me this,
That life shall live for evermore,
Else earth is darkness to the core,
And *dust* and ashes all that is." *

A recent writer has said that "*Incompleteness* is the great characteristic of this world." Now in face of all these considerations, and especially in the *obvious incompleteness of human Life*, is Man not warranted in believing that he is intended for a destiny much higher than the present life affords? Even Shelley being witness:—

"We have passed Age's icy caves,
And Manhood's dark and tossing waves,
And Youth's smooth ocean, smiling to betray!
Beyond the glassy gulfs we flee
Of shadow-peopled Infancy,
Through Death and Birth, to a Diviner day," †

. . . . . .

But we have almost forgotten that our *original* question—"What is Truth?"—remains only partially answered.

Truth may be considered as a vast ladder, consisting of four great steps. Invisible to all else, it invitingly stands at the feet of every true Inquirer,

* "In Memoriam," xxxiv.
† "Prometheus Unbound," act ii. sc. 5.

canopied indeed with clouds, but reaching up to the very throne of the Eternities.

"What is Truth?" is answered by the Senses, as the Child reaches the First easy step.

The Second becomes almost equally easy, as the Boy learns Truths from the mouth of his preceptor, his schoolfellows, and his books, in all of which he has implicit confidence.

By and by, he repeats the question, "What is Truth?" and the Sciences invite him to mount the Third step—somewhat more difficult. Here he sees a wonderful expanse of true Knowledge, apparently widening out into yet wider speculation. He may feel, like Milton's Belial, consciously proud of his "intellectual being—those thoughts that wander through eternity"*—soaring upwards in imagination, and demanding an answer to the—as yet to him—insoluble question, "What is Truth?" But there is no response.

If endowed with unprejudiced clearness f vision, he will not rest here, but climb the Fourth step, by the aid of the Mental or Spiritual Science. Here he will find himself possessed of new vision, in which doubt cannot find a place. If he can cast off preconceptions, he will discover that he is standing in the vestibule of Truth's palace—the Centre from which all Truth emanates. The Light may become dazzling, and perchance he will pause with awe. But this question is answered at last—*he knows* now "What is Truth." And so our Argument is ended. Even the Agnostic no longer can say, "I know nothing."

* "Paradise Lost," bk. ii.

For is not our Inquirer after Truth conscious that he is now standing in view of the great Ocean of absolute Truth, and that he has just gathered one little Geometrical gem upon its shore? Can he stop here? He has found *one* Universal Truth logically perfect. It is clear as an icefield, but as cold, entirely devoid of all moral qualities and feeling, such as the Mind of Man can with satisfaction rest on. Will he not aspire to new truths of higher importance—truths regarding the great Author of them all—of the glorious Universe around—of the beauties of the World spread before him—*of his own relations thereto*, the joys and sorrows of his fellow-men, and their and his own future destiny?

The Inquirer after Truth is now possessed of pure vision. Is it possible to think that the great Moral and Spiritual Truths can escape his mental recognition—truths of such personal importance that all Geometrical problems become insignificant in comparison? And are not they waiting to answer his confused questionings? "Who am I; what is this Me?" "Sure enough, I am; and lately was not: but Whence? How? Whereto?" "The answer indeed lies around, written—uttered in all tones—in thousand-voiced harmonious Nature," veiled indeed, but *finally dumb only to the Insincere, the Intellectually-Proud, and the Self-righteous.*

The Mind, we have seen, is the Man, and TRUTH is the highest Ideal of Mind. Its search is assuredly the most ennobling of studies. We are told that "Wisdom lingers;" but Time is rushing onward with apparently ever-quickening wings.

William Shakespeare, a true Philosopher and Seer, has written that:—

> "Ignorance is the curse of God:
> Knowledge the wing wherewith we fly to heaven."

We wish to have a parting word with our younger readers, who may have followed us thus far, and who will acknowledge that we have at least suggested abundant food for thought. To them we may be permitted a word of warning, as well as of encouragement. "Truth," we have been told, "lies in the bottom of a well," but he who tries to reach it by pumping out the water will find himself disappointed, for a true well never can be dried up. Truth itself, like the water-spring, is perennial. But every advance we make in true knowledge, although in itself a great delight, tends to humble our presumption by showing us "how ignorant we be." This, however, instead of discouraging, should stimulate us in the pursuit; for nothing in life is so elevating to the Mind, or so calculated to give stability and independence to the character. In our anxiety to be clear, we have been somewhat profuse, but we trust our readers will not find that we incur Virgil's censure by "*Wrapping Truth in Obscurity.*" There is great beauty in Truth, for although it is indefinitely multiform, every special Truth, as already said, finds its own place in one great whole.

We have throughout tried to encourage *independent thinking and logical examination of even the highest authorities.* It is possible to do so without detracting from our admiration of their great genius, or depreciating the vast benefits their books

prevent them even seeing the *possibility* of a different one. They would proceed to examine the masterpiece of the greatest Painter, or the statuary even of a Phidias, with a Microscope, and see nothing but minute specks of Dust upon their surfaces, immensely magnified!

Nothing is farther from our intention than to encourage mere dilettanti speculations, or the loose holding of any *Truth*. John Ruskin says that "there are some faults slight in the sight of Love, some errors trivial in the estimate of Wisdom, but Truth forgives no insult, and endures no stain."

Universal Truth is exact in her vocabulary. She uses no such words as "perhaps"; her words are decisive and definite. "Give me," said John Milton, "the liberty to know, to think, to utter freely . . . above all other liberties. . . . Truth is strong . . . she needs no policies, no stratagems, to make her victories. These are the shifts that error uses against her powers." And again we are told that "A good book is the precious life-blood of a master-spirit embalmed and treasured up on purpose to a life beyond life."

No Truth once clearly attained can be too firmly maintained; but, as others may see it in a different light, we should not press our opinions upon them dogmatically. Above all, a young reader should beware of entering upon the investigation of any disputed subject with an already fixed opinion, such as will assuredly prejudice and forestall judgment thereon. The neglect of this maxim is perhaps the greatest obstacle Truth has to contend with, and explains the interminable nature of the Argument

between the Theologians and the Evolutionists on the subject of the "Origin of Man." Neither will seriously look at the evidences and facts of the opposite side. We think it was a French writer of last century who said that some men looked down into the sea in search of beauties under the waves, "but saw only their own faces."

Finally, the grand solvent of all controversial feeling is a respectful and charitable opinion of our opponent's qualifications and honesty, and a willingness on our own part to learn something from him; for of all the graces that of Toleration of other men's opinions is the rarest. "Time," says Renan, "is the necessary collaborator of reason; the main point is to know how to wait."

The whole current and compass of Belief seem to have been traversed, and opinions opposite as the poles have been asserted, contradicted, and defended by thinkers of endless variety, and with all degrees of genius and acumen. *Perhaps consequently*, the Philosophy of Mind has lost much of its old interest. Hamilton, quoting a satirical observation of Varro, writes that "there is nothing so absurd which has not been asserted by some Philosopher;" and the sect of ancient Sceptics held with Pyrrho that what was considered *most certain* was not free of objection or counter arguments; or, to use Milton's words, he "doubted all things, though plain sense." Lord Tennyson has well said:—

> "Hold thou the good; define it well:
> For fear divine Philosophy
> Should push beyond her mark."*

* "In Memoriam," liii.

Dr. Johnson said, "The human mind is so limited that it cannot take in all the parts of a subject, so that there may be objections raised against anything." "A sceptic" said Saint Beuve, "is not one who doubts, but one who examines." * Speaking of the wise man, Herbert Spencer has nobly said: "The highest truth he sees he will fearlessly utter, knowing that if he can effect the change he aims at—well; if not—well also; though not so well." It has been well said that "none are less eager to learn than those who know nothing."

In truth, this grand Philosophy has been buried under a mountain of *words*, but we believe that it will yet emerge in its greatness and simplicity. An eminent Philosopher has told us that "There is nothing great but Man; in Man there is nothing great but Mind;" and according to Sir William Hamilton, "No other study so fills and satisfies the Mind. No other Science is to be compared in dignity or value to that which human Consciousness (Mind) furnishes to its own contemplation"—that is pure Philosophy.

We trust our juvenile readers will find the retrospect of our Search after Truth, as pleasant as does the writer. It must, however, be somewhat saddened by the thought, that with all our advances in Science and Philosophy, our knowledge is yet so imperfect. The scholastic reader will remark that in criticism our standpoint is entirely different from that of the higher class Theological school of recent years, but is not meant to be antagonistic thereto. Perhaps both may be useful. It may truly be said,

* "Studies in Religious History," p. 7. (Bentley, London, 1886).

that "although knowledge is its own servant, the moment man begins to teach he forgets his own ignorance—for him the only thing in the world worth knowing."

Coleridge has said, "I expect neither profit nor general fame by my writings, and I consider myself as having been amply repaid without either. They have been to me their own 'exceeding great reward,' they have multiplied and refined my enjoyments . . . and given me the habit of wishing to discover the good and the beautiful in all that meets and surrounds me." This was no doubt an over-modest estimate to make on the part of so eminent a genius, but it would be well for all seekers after Truth, known or unknown, to be able *truly* to make the same confession in regard to their own writings.

However, TRUTH is ever buoyant. Any Truth may be submerged in the angry currents of the river or hid in the sweeping eddies of the wide lagoon, but it will yet appear in the open sea afloat—if only we have patience to wait.

THE END.

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